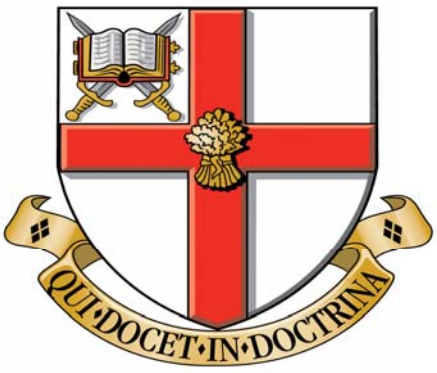

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Title: New technology and the Help Desk: Research into how new technology could be used to improve the efficiency of the Customer Services Help Desk at Cheshire County Council

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New Technology and the Help Desk

Research into how new technology could be used to improve the efficiency of the Customer Services Help Desk at Cheshire County Council.

Dissertation submitted in accordance with the requirements of the University College Chester for the degree of MSc Information Systems

Shirley Thomas
October 1998

Abstract

This research identifies different technologies used to assist with the management of help desks, including Call Management Software, Problem Resolution Systems and Computer Telephony Integration, showing how they can improve efficiency. The requirements of the help desk at Cheshire County Council are identified by analysing the current system and by sending a survey to the customers. The survey also attempts to establish whether the use of new technology would be acceptable to the customers. A pilot study, giving staff in Social Services access to a list of FAQs (Frequently Asked Questions) was set up to gauge the effectiveness of a simple problem resolution system, however because of the pressures of other work on support staff this has not yet been completed.

The research showed that the new technologies would not be beneficial unless the information held (particularly the contact database) is accurate. The failure to implement the FAQ in Social Services highlighted the problems of allocating the resources needed to achieve this in an organisation where staff are under pressure solving current problems. Providing the contact database is maintained and a knowledge base set up, with procedures in place to ensure the information is correct and relevant, then replacing the problem management system and introducing a problem resolution system could potentially improve the efficiency of the help desk. This would be achieved by giving management access to the relevant information to enable them to make decisions, increasing the spot rate (calls answered on first call) and by reducing the time to log calls.

Recommendations are made for introducing changes and for further research.

Word Count = 14,500

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Appendix

1. Introduction

There are currently about 3000 PCs and 300 dumb terminals included on the help desk inventory for Cheshire County Council, with over 2000 users having e-mail accounts. These are used for a wide range of services including running specialised software (both packages and bespoke systems written in-house), word processors, spreadsheets, e-mail and for access to systems running on the mainframe. Some of the PCs are stand alone but many are part of Local Area Networks and linked to the County network, mainframe and VAX machines.

The help desk in Customer Services is an interface between the users of information technology and the technical staff. It provides one point of contact for all problems or queries users might have including fall-overs, advice and sales. Problems are logged to enable progress to be monitored and to ensure all calls are followed up to a satisfactory conclusion.

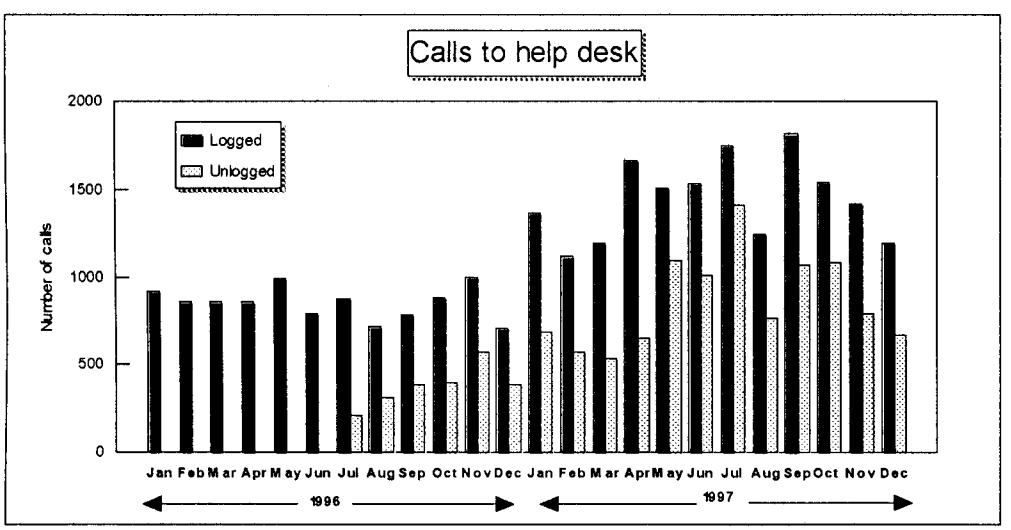

Figure 1.1 - Graph of calls received by the help desk during 1996 and 1997

The number of calls over the last two years has increased (See Figure 1.1) due to:-

- Unification of IT. Education and Environment Departments had up until last year their own IT sections with their own help desk but have now amalgamated with Information Systems.
- Increased use of PCs in all departments.
- Introduction of QMS (Quality Management System) and the internal market means that all work must be authorised either by initiating a project or logging a help desk call. This has reduced the number of 'informal' requests for help which used to come directly to the development and support teams.

Under the Local Government Review Warrington and Halton will separate from Cheshire and become unitary authorities, reducing the size of Cheshire County Council by 35% from April 1998. This is referred to as "New Cheshire". The loss of staff in all departments will result in a loss of local expertise in using IT which, together with the introduction of new technology, is expected to result in the number of calls to the help desk continuing to rise. Information Systems, including Customer Services, are also losing staff therefore there is an urgent need for the help desk to become more efficient.

The Council are in the process of installing TCP/IP as their communications protocol and planning to introduce an Intranet by the end of the year. They are also in the process of replacing their e-mail system with Microsoft Exchange giving the potential for integrating it into the call management software. This research will try to determine if using these or other new technologies could improve the efficiency of Customer Services by providing a better service to the client while reducing the cost.

2 Aim, Objective and Methodology

2.1 Aim

The aim of this research was to determine whether new technology can be used to make the help desk more efficient. Automation is an ongoing process, management should be continually looking for the cause of the highest number of calls and if possible automating the resolution (Czegel, 1994).

2.2 Objectives

- Analyse the current system.
- Determine the requirements for the future.
- Evaluate call management systems against the requirements.
- Determine whether problem resolution systems would reduce the length of time to resolve calls or the number of calls.
- Make recommendations for the future.

2.3 Methodology

2.3.1 Analyse the current system

The current system was analysed by interviewing the:-

- Service Centre Manager
- Help Desk Supervisor
- Help desk operator
- Schools Support Supervisor
- Office Support Supervisor.

Half a day was spent in the Help Desk office observing how calls are dealt with.

The procedures were documented using SSADM, the systems analysis methodology used within the department. The dataflow diagrams and data structure of the current system were validated with the users.

2.3.2 Determine the users' requirements for the future

Users are defined as staff within Customer Services. Their requirements were determined during the analysis of the current system. The current system was logicalised, combining processes which are connected and removing ones which cannot be automated. The resulting dataflow diagrams were agreed with the users.

2.3.3 Determine the customers' requirements for the future

Customers are all staff within the County Council who use Information Systems. Their requirements were determined by sending out a questionnaire. It was designed to determine what customers felt about the service they receive from the current help desk and what they think is important for the future.

The design and content of the questionnaire was piloted by sending it to six customers with a request for feedback on presentation and how difficult it was to complete. This resulted in minor amendments, particularly to the last question that originally asked for 5 choices to be prioritised and was thought to be too difficult. It was sent to a further 3 customers and the format agreed with the Customer Services Manager and Marketing Department. A copy of the final questionnaire has been included in Appendix A.

Subjects were chosen according to the number of calls made to the help desk between January and July 1997 and by department, in proportion to the total number of calls made by the department (See Figure 2.1). All users from Warrington, Halton, Fire, Police and external calls were excluded as they are not part of New Cheshire. A total of 300 questionnaires were sent out, 100 to users who have contacted the help desk 4-5 times (Group 1), 100 who have contacted the help desk 6-10 times (Group 2) and 100 who have contacted it more than 10 (Group 3).

The questionnaire was anonymous but the group number was printed as part of the reference. It was not possible to select subjects randomly within their groups because of the poor data with missing names and incomplete addresses. However the number

of questionnaires being sent was large and by splitting the subjects into groups and selecting by departments, all types of customers were included.

Department	Number of calls Jan - July	Percentage of calls	Number of subjects in each Group
CBS	89	0.75	1
EDUC	877	7.33	7
ENVI	2,683	22.16	22
EXCH & INFO	1,285	10.61	11
FINANCE	314	2.59	3
FIRE	164	1.35	1
I&LS	1,219	10.07	10
PERS&MAN	337	2.78	3
POLICY	266	2.2	2
PROBATION	12	0.1	0
PROPERTY	104	0.86	1
RES PLAN	93	0.77	1
SCHOOL	2,457	20.29	20
SOC SER	2,196	18.14	18
TOTAL	**12,096**	**100**	**100**

Figure 2.1 - Calculation of numbers of questionnaires per department

2.3.4 Evaluate call management systems.

Three call management systems were selected by reading product reviews, advice from the Customer Services Manager and from product literature including information on the Internet. Products had to be within the County's budget and compatible with the County's long term IT strategy. These were compared with the client server version of PNMS, the call management system currently used by the County Council. The products were evaluated against the requirements by:-

- Asking the suppliers to demonstrate the system.
- Obtaining an evaluation copy of the software.
- Contacting other users of the system.

Staff from Customer Services were consulted where possible.

2.3.5 Determine whether problem resolution systems would improve the efficiency of the help desk

The calls received from Social Services were entered into a spread sheet to enable statistics to be produced on the type of call. Ten problems were selected which could possibly be resolved by the users and set up as a Windows help file. These were validated by the support staff before being implemented in Social Services. The impact of this system was predicted by calculating the possible savings for the last six months by determining which calls could have been avoided. The actual impact of the help system was to be monitored.

Office Services and Netware Support have been given access to TechNet and third-level support has been purchased from Hewlett Packard. If calls cannot be answered quickly they should be passed to Hewlett Packard. It is not expected that this will reduce the number of calls but should reduce the length of time taken to resolve them. This will be monitored over the next three months and compared with the number of calls to Hewlett Packard and the amount of use made of TechNet by Office Services and the Netware Team.

2.3.6 Conclusion

From the results of the analysis, customer survey and pilots it was determined whether new technology could be used to improve the efficiency of the help desk at Cheshire County Council.

2.3.7 Recommendations and Further Research

Recommendations were made for the future further research identified.

3. Literature Search

3.1 Introduction

During my literature survey I came across many definitions of a help desk but it is probably best summed up in a Gartner report (Fiering, 1992) as 'providing a single point of contact and responsibility for rapid closure of end-user technology problems.' Many help desks extend this to include proactively managing end-user technology by being responsible for maintenance contracts, purchases, installations and training of users.

As businesses become more dependant on PCs, the informal support which evolved in most organisations is no longer adequate. Consequently the number of businesses with internal help desks is increasing rapidly and established help desks are faced with the problem of a continual rise in the number of calls as the use of technology increases. This has created a market for information and tools to help set up and manage help desks. Some books have been written on how help desks should be organised and run but because the help desk is a relatively new phenomenon, there has been very little research devoted to this area. (Marcella, 1996).

This literature survey looks at new technologies, and how they could be used to improve the efficiency of the help desk by:-

- Reducing the number of calls received by the help desk.
- Resolving calls faster

Figure 3.1 summarises how these objectives can be achieved, highlighting areas of new technology to be included in this literature survey.

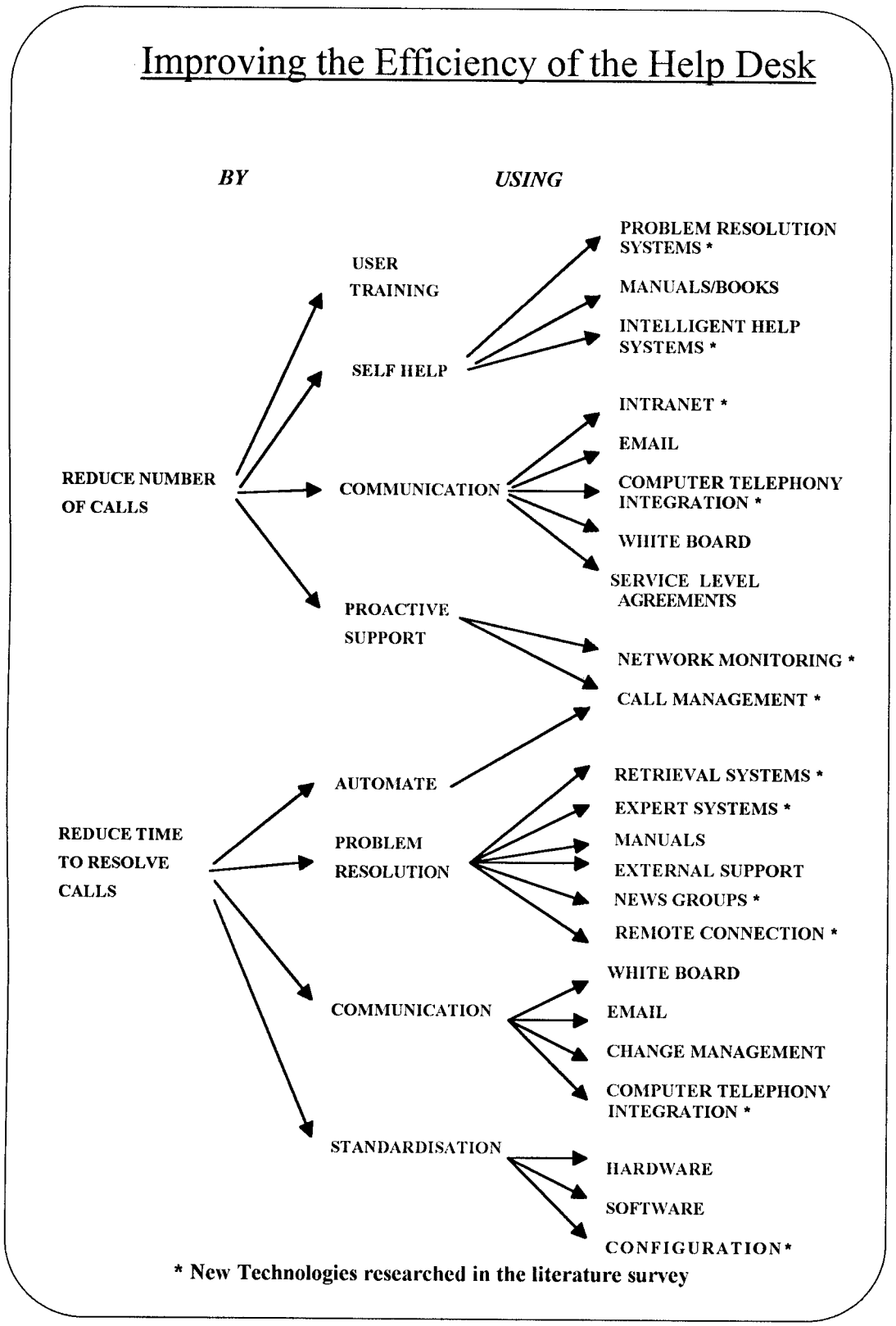

Figure 3.1 - How to improve the efficiency of the help desk

Much of the information used in this literature survey was found on the Internet (See Philip Verghis' Help Desk FAQ -http://www.duke.edu/~pverghis/hdeskfaq.htm) or in articles published by institutions involved in research such as the Gartner Group, British Library (Marcella, 1996), Help Desk Institute (HDI) and Help Desk User Group (HUG). Books which proved particularly useful include Czegel's *Running an Effective Help Desk* and *The Helpdesk Handbook* published by HUG, both giving a general overview of the subject.

A newsgroup set up to enable help desk professionals exchange ideas has given me some useful contacts and references (bit.listserv.hdesk-1).

The nature of this project demands that the information has to be current, in particular product reviews and research therefore only books published after 1991 and research or product reviews from 1997 have been used.

3.2 Computer Telephony Integration (CTI)

3.2.1 Automatic Call Distributor (ACD)

This enables calls to be distributed to staff on a first-come-first-serve basis, or allows the caller to select from a list of options, routing the call to the appropriate area. If all analysts are busy the call is held in a queue and an appropriate message played to the caller. Statistics available include the number of calls, number of abandoned calls, time clients spend on hold and the time of each call.

3.2.2 Automated Attendant

The caller selects the service required using the telephone key pad. The caller is then played a recorded message or sent a Fax with the information requested. This system is often used to give limited out of hours support.

3.2.3 Voice Response Unit (VRU)

This provides an interface between the telephone and a computer, with the user requesting information or updating information using the telephone key pad. This can include requesting information about a problem, automatically resetting terminals or logging a problem. An example of VRU is the gas board who allow you to enter your customer number followed by the meter reading. Voice can also be incorporated into VRU systems.

All the leading software companies are developing their own interface between PCs and the telephone and include TSAPI - Telephony Services Application Program Interface from Novell and TAPI -Telephony Application Program Interface from Microsoft.

3.2.4 Caller ID database lookup

The callers telephone number is identified using *automatic number identification* and retrieves the client information and details of hardware from a database. This information however must be verified as it assumes that the caller always uses the same phone.

3.2.5 Fax

When a solution is identified which has a lengthy explanation this can be faxed to the client to reduce the length of the call.

3.3 Call Management Systems (CMS)

Call Management Systems enable support staff to manage calls ensuring that they are followed up and resolved. They also give access to statistics to enable managers to make informed decisions on how to run the help desk, what hardware/software is most reliable and training requirements. There are many packages on the market, varying in size from systems running on stand alone PCs to enterprise wide systems running on mainframes or NT servers. According to a survey carried out by Serviceware, about 85% of organisations buy CMS packages as opposed to writing their own. Of these most small and large help desks seemed satisfied with the product, scoring them between 8 & 9 out of 10. However the medium sized help desks, with between 4 and 5 first-level analysts, only gave an average score of 5. The author deduces that most help desk products are aimed at either a small or large help desk. The mid-size help desk are not satisfied with the functionality of the low-end products but find the enterprise systems too complex. (Pepper, J. 1996).

A survey by HUG (Barclay R.1995) found that 58% of their respondents were not satisfied with their call logging software because:-

- Inflexibility of the system 34%
- Slow Response Times 21%
- Not conforming to requirements 21%
- Unsatisfactory vendor support 12%
- Lack of upgrades 12%

However the number of questionnaires returned was low, only 18% of members responding. The response was so low this year that the results were not published.

Typically call management systems enable staff to :-

- Log calls
- Route calls to the appropriate analyst
- Store information on calls and resolutions
- Monitor the work flow
- Calculate management statistics

They often include or interface with expert systems, CTI, e-mail, and asset management systems.

It is important that the call logging system can display or print meaningful statistics, however too much information can be as bad as not enough. The key factors are:-

Usage Rate	- Calls per user
Overhead Calls	- Calls not directly related to work in customer services
Spot Rate	- Percentage of calls which require no further action
Response Time	- Time taken to get back to client by specialist
Fix Time	
Fixes per analyst	

(Bruton, 1995)

The spot rate and fixes per analyst can be used to demonstrate how increasing the spot rate reduces the cost and calculate the number of staff required to run a help desk.

e.g. - Assuming 30-40 calls can be answered per day by one person and each analyst can solve 3 calls
- 1000 users generating 7000 queries per year (equivalent to 32 queries per day based on 220 working days)

If spot rate is 60% 1 member of staff required to answer phone plus 4 staff to resolve 12.8 calls (40% of 32) plus 1 member of staff to cover for absence. Total = 6.

If spot rate is 70% 1 member of staff required to answer phone plus 3 staff to resolve 9.6 calls (30% of 32) plus 1 member of staff to cover for absence. Total = 5

The British Library carried out a survey of organisations with dedicated internal help desks. Out of 141 responses, 62.1% had a call logging system, rising to almost 100% for organisation that receive more than 100 calls a day. The spot rate varied from zero to 99% with an even spread throughout. (Marcella & Middleton 1996)

3.4 Asset Management

Asset management systems automatically determine the hardware and software, including configuration of all PCs connected to a network. More sophisticated systems can be customised and programmed to remove illegal software and control licensing. The inventory can be valuable to the help desk when checking warranties, setting up maintenance agreements, managing Service Level Agreements (SLAs) and solving problems. It has a big advantage over manual systems which involve collecting the information from each PC, as the information can be kept up-to-date.

One of the problems with asset management software is that it usually only works with a limited range of hardware. This problem is being addressed by a consortium of vendors called The Desktop Management Task Force which formed in 1992 to set a standard. This is known as the Desktop Management Interface (DMI) which is now being incorporated into both hardware and software. (Czegel 1994)

3.5 Network Management Systems

Network management systems monitor the performance of a network and can highlight problems or degradation of components. This allows analysts to be proactive in their support of the network, identifying and fixing problems before they impact on the users. Abnormal traffic, security breaches and damaged connections can all be flagged and investigated. Mission critical networks should always have a network management system.

3.6 Intranet

The Intranet gives the help desk the opportunity to publish information in an attractive manner including graphics, sound and video. It is cheap and convenient and in many organisations readily available to users. By publishing an up-to-date list of progress on open calls it could reduce calls by as much as 40% (Bruton con9705.htm). Other uses could be to tell users about services offered by the help desk or the state of the network.

Most users do not read manuals or contact bulletin boards even though the information they require is available, therefore it is important that they see a benefit from using it. Some systems are attempting to identify the problem area using embedded ActiveX controls in the application to point the user to the appropriate information or offer short training sessions lasting 4-6 minutes.

Many of the call logging systems now give users the ability to log their own problems using the Intranet/Internet, reducing the number of calls and avoiding the expense of additional licences to access the service desk software. Courion's Password Courier enables users to reset their passwords over the Intranet, reducing calls by 15-30%. (Keyworth 97).

3.7 Problem Resolution Systems

Specialists solve problems by using their knowledge of how the system works or by recalling previous similar problems and adapting the solution to fit. Often this is from memory or by reference to manuals and documentation. Problem resolution Systems are an attempt to make this information more accessible. They are of the greatest value to the first level support analysts where there is the widest range of technologies to support and therefore the skill level cannot be maintained.

PRS (Problem Resolution Systems) claim to reduce the time taken for an analyst to resolve a call and enable them to answer a wider range of queries. With the introduction of knowledge bases and Frequently Asked Questions via the Intranet and Internet it is hoped that users could answer some of their own queries. However, even with access to problem resolution systems, some users will always prefer to call a help desk. An article published by Gartner, *The Impediments of an Intranet-Based Service Desk* (Hunt 1996), cites three reasons why users may be reluctant to lose access to telephone support. These are:-

- Some users will not be interested in using the Intranet
- Some users need help to describe their problem
- Some users will need to talk to an analyst after exhausting the help available over the Intranet.

A survey carried out by Serviceware (Pepper, J. 1996) found that only half of the help desks returning their questionnaire used Problem Resolution Systems, although they almost all used Call Management Systems. The larger the help desk the more use was made of the PRS, with only 5% of problems in the small help desk and as many as 20% in the large help desks being resolved using one. This was a lot higher than had been observed by Bruton (1995) who observed that on a busy help desk the knowledge base was consulted for less than 2% of the calls and was useful in even less. He concluded that the majority of calls were too simple and could be answered straight away or the number of 'possible relevant' answers returned by the PRS was unusably large.

PRS can either be retrieval or advisory.

Retrieval systems include databases of previous problems and their resolutions and on-line technical manuals retrieved via a search engine.

Advisory systems include Expert systems and Newsgroups. Expert systems are composed of a knowledge base and an inference engine and can be rule-based or case-based. The knowledge base can be embedded in the Call Management System, stand-alone on a CD-ROM or available on the Internet accessible using a search engine.

3.7.1 Problem Databases

Databases of previous problems can be accessed using *text search engines* and can include *hypertext links* to enable analysts to access related material. The system relies on the analyst to look at solutions and determine if they are relevant, there is no attempt to incorporate intelligence into the system. The database is continually updated with new problems therefore only problems which have occurred in the past can be addressed.

Databases of previous problems should be used with caution as the information is not usually checked for quality or accuracy and can become out of date. Typing errors are often made when logging calls due to the pressure of work and the limited technical

knowledge of the help desk operator. This can be overcome by selecting the most Frequently Asked Questions (FAQ) and verifying the solutions. These can be made available to users and support analysts as on-line help or via a search engine on the Internet or Intranet.

3.7.2 On-line manuals

Most software companies now supply manuals on-line which can be accessed from within the package. This can include keyword search, FAQ, cue cards and wizards to guide users through tasks. This reduces the cost of software and enables the manuals to be more easily kept up-to-date, although is not always welcomed by the users.

Microsoft sell a CD, TechNet with technical notes, fixes and product information issued monthly at a cost of about £500/year for a networked version. It comes with a search engine.

3.7.3 Intelligent Help Systems

Most help systems are aimed at the 'typical' user which can be frustrating for the expert and inadequate for the novice. Intelligent help systems monitor the activity of a user and construct a model including preferences, mistakes and experience. This is then used in an attempt to offer help at the correct level or in some cases actually take an active role and correct mistakes (Finlay 1993). The models can be set up in a number of ways:-

Quantification - Activities are given weightings and the user scores points by achieving different activities. The help offered is determined by the total score. This method is very simple but only gives a rough guide to the level of expertise.

Stereotypes - Classifies users as novices, experts etc. This can be done using a neural network to learn how different groups of users carry out tasks and comparing the current user with these models.

Overlay models - The user is compared to an expert user and the differences or shortfalls used to offer help or advice. This is the most common technique used.

Some help systems attempt to recognise tasks as sequences of commands. If the user deviates from this sequence help is offered. This can become intrusive and annoying.

Intelligent help systems can however be prohibitively expensive because of the difficulty of determining user behaviour and the amount of data which needs to be stored.

3.7.4 Knowledge Bases - Case Based Reasoning

A case based system is an expert system which 'solves new problems by adapting solutions that were used to solve old problems' (Reisbeck and Schank, 1989). (See Figure 3.2)

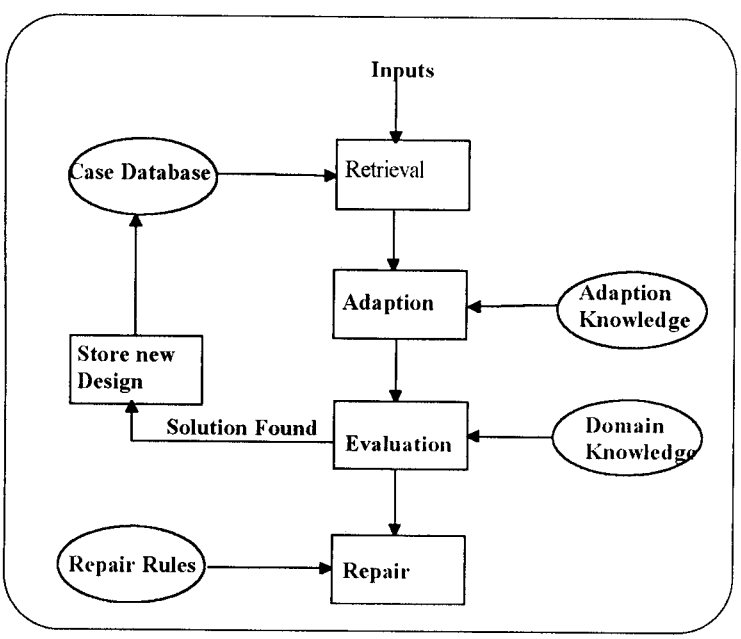

Figure 3.2 - Example of CBR system structure (based on Riesbeck and Schank,1989)

Previous problems and solutions, referred to as cases, are entered into a case database. Attributes in the cases are weighted to reflect the value or relevance of the information to the problem, e.g. in responding to help desk calls, an error code or error message would be given a high weighting.

New situations are compared to the cases on the database and the best match is found by comparing the attributes. The results are adjusted to reflect the weightings and to allow for missing information in either the case or presented situation, scoring correct information higher and incorrect information lower than information which is absent.

If an exact match is found the database retrieves the solution and no reasoning is required. When there is not an exact match the 'best fit' cases are used to derive a possible solution. This can be by simple substitution (see Figure 3.3) or by using a more complex set of rules.

Situation: buy(fishmonger,cod),owner(fishmonger,Fred),cost(cod,£3)

Best case: buy(postoffice,stamp),owner(postoffice,Dilys),cost(stamp,25p)
Action: pay(Dilys,25p)

The comparison gives the following differences:

fishmonger	→	postoffice
cod	→	stamp
Fred	→	Dilys
£3	→	25p

The action is then modified to pay(Fred,£3)

Figure 3.3 - Example of using CBR -Simple substitution

Some systems simply return the best solutions and leave it to the user to derive the appropriate action. This then becomes a retrieval system.

After verification the new situation and action are added to the case database increasing the knowledge stored.

Advantages of case-based reasoning systems :-

- give the user a clear explanation of how they reached the new action
- can cope with partial data
- the cases entered do not need to be linked or verified against each other

3.7.5 Knowledge Bases - Rule-based

Rule-based systems are usually decision trees and problems are resolved by the user answering a series of questions, the next question being dependant on the previous one. The first questions are used to classify the problem with further questions to diagnose it. Classification questions can become tedious for experienced analysts, or difficult to answer if the problem is hard to define, therefore some systems now incorporate a full-text search engine, supplemented by questions to find the solutions, enabling analysts to bypass the classification questions.

The knowledge is stored using IF THEN rules, specifying what to do under certain circumstances.

It can often be very difficult to maintain a rule-based expert system, especially to support Information Technology because of the continual change and difficulty in validating all the relationships in a large knowledge base. However companies have evolved who market both case-based and rule-based knowledge bases to support packages, operating systems and networks. These companies include Inference and Microsoft. Many of the call tracking and management systems have inference engines incorporated which allows them to access the knowledge bases while logging a problem.

3.8 Remote Access Software

Remote access software, e.g. PCAnywhere from Symatec or CarbonCopy from Microcom, allows the analyst to take control of a users PC on a Local Area Network or across a telephone connection. The analyst can control the PC remotely using their own keyboard and mouse and can display the results on their screen. This can have tremendous savings, especially when analysts are supporting user sites which are spread over a geographically large area. One problem which needs addressing is the issue of security and customer's privacy. Another problem is the effect this might have on the network traffic, especially for applications with graphics. PCAnywhere is already being successfully used within the County Council by schools support.

3.9 Newsgroups

Newsgroups allow an analyst or user to post their problem which can then be read by others signing up to the service. Anyone who has an answer or can comment on the problem adds a response. These are becoming common place on the Internet. They are particularly useful for home users who do not have access to dedicated help desks or in academic institutions where time spent resolving other people's problems would be considered beneficial.

Within an organisation, such as the County Council, they could be used to train analysts in a particular skill e.g. Windows 95, or by the support staff to answer a difficult problem. They are particularly useful to developers who do not have access to expertise within their own organisation.

3.10 Industry Standards

The Customer Support Consortium (CSC) and Desktop Management Task Force (DMTF) have worked together to agree standards for Solution Exchange Standard (SES) and Service Incident Standard (SIS). It is expected that most vendors will implement the standard by the end of 1997 giving help desks the ability to exchange both knowledge and problem ticket information between themselves and third-party support providers.

Two white papers are available on-line summarising the business need (Bultama 1996). Version 1 of the standard can be found at http://www.dmtf.org.

SES will enable organisations to export problems and resolutions to another organisation which they can then add to their own knowledge bases.

SIS allows two organisations to pass problem tickets between their call tracking systems, removing the need for clients to explain the problem again. This is particularly useful when a problem is being escalated to a third level of support outside the company.

3.11 Standardisation of Configuration

With the introduction of PCs support costs are escalating. Every machine can be configured differently and the configuration can be changed by the user. To address this problem the computer industry is introducing 'thin clients', PCs without hard disks, the operating system being downloaded from the server. These include network computers (NCs). Unlike dumb terminals connected to the main frame, some of the processing is done on the client machine enabling applications to be run which have a Graphical User Interface (GUI). 'Thin clients' have been made possible by the introduction of Java, a cross-platform language downloaded from the server in small chunks or applets as required and executed within a Web browser.

Not only will 'thin clients' cost less to buy than PCs ('thick clients'), but both Zona Research and Gartner Group have estimated that the cost of supporting an NT network with 15 NCs will be less than half the cost of supporting a similar network with 15 PCs over a five year period.

'Thin clients' are dependant on having a powerful server and a high bandwidth to ensure users get an acceptable response. They are not suitable for users who require a lot of local computing power, e.g. graphic designers or for users without a network connection or relying on a dialup service.

ADVANTAGES OF THE 'THICK CLIENT'	ADVANTAGES OF THE 'THIN CLIENT'
Users are familiar with PCs and often have access to one at home, reducing training costs.	Client machines are easier to install and support. Most support will be at the server end including software upgrades. All clients benefit from software upgrades at the same time.
Mature development environment. There is a lot of software available which can be bought off the shelf.	Users can use any terminal. Their preferences are held on the server and downloaded as they log onto the system.
Designed to run Window's applications. Although CENTIX have released software to enable Window's applications to run on an NC the performance is not as good.	System is more secure. Backups can be controlled and a firewall can protect the server from viruses and unauthorised access.

Figure 3.4 - Advantages of 'thin clients' and 'thick clients'

Software is now being released specifically for NCs, including a Java version of WordPerfect from Coral. This together with the huge investment by the industry in the development of NCs, the promised reduction in support costs and additional security that they offer will ensure their future. The advantages of 'thin clients' and 'thick clients' are summarised in Figure 3.4.

Initially Microsoft rejected the idea that PCs would be replaced by network computers, but have since announced the NetPC, which is being produced by many of the leading PC manufacturers. This is a cut down, non-upgradeable PC which will run Microsoft Zero Administration, when it is available, in an attempt to reduce support costs but keep Windows as a leading operating system in the market.

4. Analysis of the Current System

Customer Services are responsible for giving support to users of information technology in all departments of the County Council. Schools can also be included on the payment of an annual fee. About 1500 calls are logged each month and a further 1000 calls received which are not logged, giving a total of 2500. Products supported include:-

- Office Suites (WordPerfect, Office and SmartSuite)
- CheshireLink(e-mail and corporate information)
- Operating Systems (PC configuration, UNIX and mainframe)
- Communications
- Netware
- Telephones
- Hardware
- Applications (Third party packages and in house)

4.1 Organisation

Customer Services is currently part of Information Systems and is divided into three sections:- Help Desk, Schools Support and Office Support (See Figure 4.1). Staff in other teams within Information Systems are called upon for specialist support, outside the scope of Customer Services.

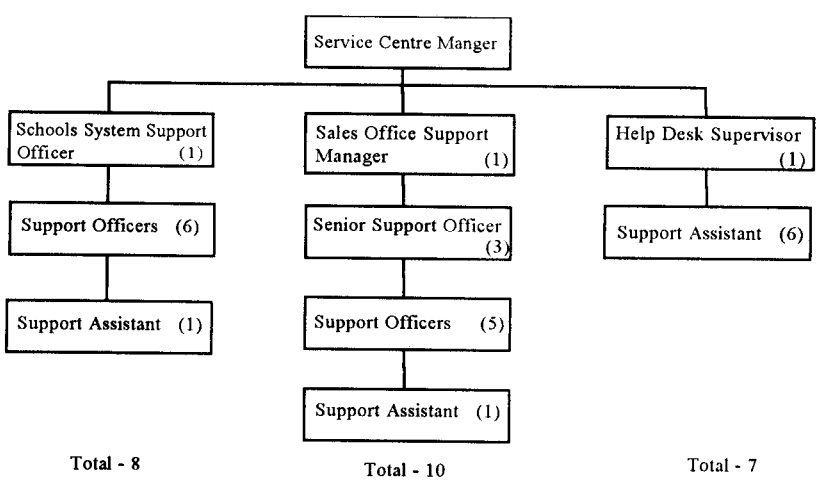

Figure 4.1 - Organisation of Customer Services

Customer Services offers three levels of support - See Figure 4.2.

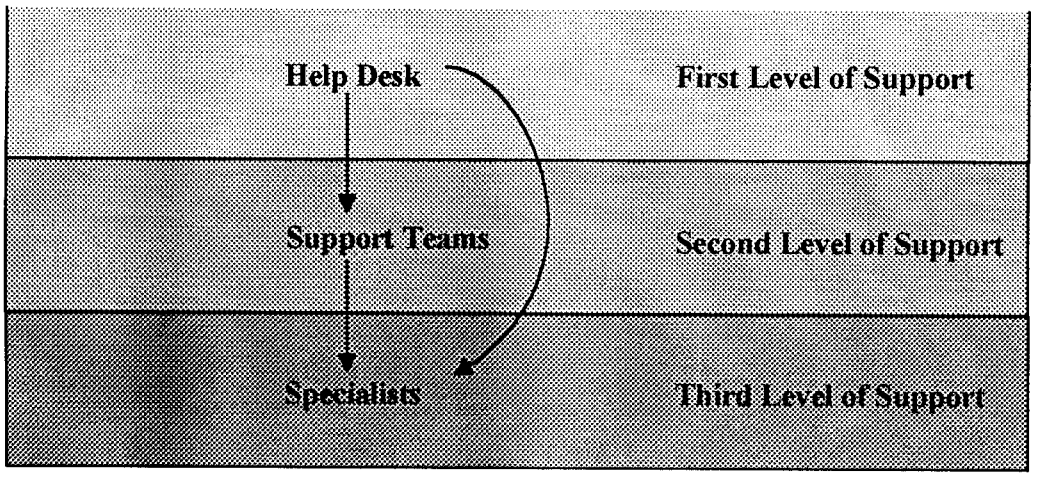

Figure 4.2 - Customer Services - levels of support

4.1.1 First Level Support - Help Desk

The help desk is manned by staff whose main task is to determine if the user is eligible for support and, if it is a hardware fault, whether the equipment is covered by warranty or a maintenance contract. Simple queries and requests, including resetting passwords, are answered by help desk staff. These calls are not logged but a tally is kept to include in statistics. All other calls are categorised and logged (see Figure 4.3). The are then assigned to a support group or specialist.

Applications	Problems with specialist packages or software written in house except schools.
CheshireLink	Problems with Cheshire's office system including E-mail.
Desktop	Problems with Windows and DOS including word processors and spreadsheets etc.
Netware	Problems with local area networks
Operations	Mainframe/VAX, X25 etc. problems
PCFaults	PC hardware faults including printers
Schools	Problems with schools software (SIMS & LRM)

Figure 4.3 - Categories of help desk calls

4.1.2 Second level support- Support group

Staff within support groups e.g. Customer Services and Schools Support, take it in turns to handle queries. These staff are skilled within their area and can therefore answer many of the calls over the phone or in the case of schools remotely connecting to the clients PC.

It is not possible to determine the number of queries answered on the first call but only 20% of desktop problems, 35% of CheshireLink calls and 31% of school's problems are resolved in less than 12 minutes. If it assumed that these calls are resolved over the phone on the first call and include the "Joe Bloggs" calls which are not logged, the spot rate is about 53%.

The second level of support has been abandoned in some of the development teams as almost all the calls needed to be re-assigned to the specialist.

4.1.3 Third level support - Specialists

Calls which cannot be answered by the member of staff on duty will be re-assigned to a specialist either in the IT department or in an external company. Calls which require a visit are slotted into a schedule and re-assigned to the member of staff going to make the call. The County supports a wide range of platforms running commercial packages, specialist systems and software written in-house, resulting in only one or two experts in each area.

4.2 Software

Cheshire County Council Customer Services Section have used PNMS from Peregrine Software to manage their customer support calls for 4 years. The system runs on the main frame and can be accessed via a SNA gateway using a PC emulating a terminal, or from a dumb terminal. All calls are logged and the progress recorded with checks to ensure they are followed up and closed. The system also holds an inventory of all hardware in the County covered by warranty or included in the maintenance agreement. Statistics are produced for management by querying the database.

4.3 Dataflow Diagrams and Process Descriptions

All processes within Customer Services, excluding charging, were analysed and documented. The data flow diagrams and process descriptions have been included in Appendix B.

4.4 Data Structure

Information about calls and hardware are stored in the PNMS databases. Information about systems supported and skills profiles for support staff and kept in a 'help desk bible'. A structure of the data and the entity descriptions has been included in Appendix C.

5. Requirements

5.1 Users Requirements

Users requirements were documented during the analysis of the current system. These were agreed with the three supervisors and the Customer Services Manager. They include functional and non-functional requirements.

1. Access for all support staff over a WAN (Wide Area Network) using client/server. Initially there will be 30 users, increasing to about 100, in several sites within the County using TCP/IP as the network protocol. There is a requirement for 20 concurrent licences for update plus an unlimited number for monitoring or read only access including access to the knowledge bases.

2. Use of a GUI interface to reduce training. This must be easy to use for new and occasional users but include shortcuts and quick exits, including keyboard alternatives to the mouse, for expert users in Customer Services.

3. MDI (Multi Document Interface) giving the ability to open more than one ticket at one time or search for other tickets and their resolutions while resolving a problem.

4. Transfer of inventory information from current system. There is no requirement to transfer the tickets.

5. Monitoring success of support against service level agreements. This is not feasible at present due to the delay between resolving the problem and updating PNMS, particularly from support teams without access to the system.

6. Database of resolutions accessible by support staff, both proprietary databases for packages and databases developed in-house to give support for Cheshire County Council software and setup. Access to part of the databases by clients giving consideration to the level of support made available to clients and training required. (Data already on PNMS should be used with caution as it has been added by a variety of staff without verification of its accuracy.)

7. Ability to view and print all updates to a ticket as a continuous narrative, not separate pages as at present. Ability to drill down to detailed information including customer history.

8. Ability to prioritise calls. At present urgent calls are difficult to identify on management reports amongst calls which are ongoing or waiting for a scheduled site visit.

9. System should be more responsive when searching. Response time is good when log number is known, but slow for other queries.

10. Easy to use report writer with ability to display/print statistics graphically and monitor workloads.

11. Ability to set different access rights for users

12. Conforms to Microsoft design standards

13. Ability to send e-mails (Link to Microsoft Exchange, Back office)

14. Pick list and automatic fill from lookup tables, including client details, SLA, assets and contact details, with the option of overwriting the information for temporary changes.

15. Customise data

16. Open/Close/Log/Reopen calls

17. Update actions and follow up dates.

18. Quick Log for ad hoc calls

19. Assign/reassign calls. Keep list of skills to give list of experts

20. Categorise calls. Facility for different input screen depending on category. Change category

21. Year 2000 compliant

22. Keep inventory of hardware

23. Alert facility for clients with similar names or difficult customers.

24. Ability to interface to CTI systems.

25. Keep details of scheduled visits.

26. Ability to print to local printer.

5.2 Customer Survey

The survey was sent out to determine how customers rated the current service and what aspects they felt were important. Of the 300 surveys sent out, 200 were returned, a response rate of 66%. This was much higher than expected and reflects the importance of the help desk to the customers. Comments had been added to 50% of the surveys returned, many praising the current service or offering constructive comments. A list of the comments and an analysis of the results has been included in appendix D.

The perception of how many times customers used the help desk was very different from the actual totals on PNMS. Many of Group 1 (logged 4-5 calls) thought they were medium and high users, customers in Group 2 (logged 6 - 10 calls) were evenly distributed across the range and about a third of Group 3 (logged > 10 calls) appeared to underestimate their use of the help desk. (See Figure 5.1).

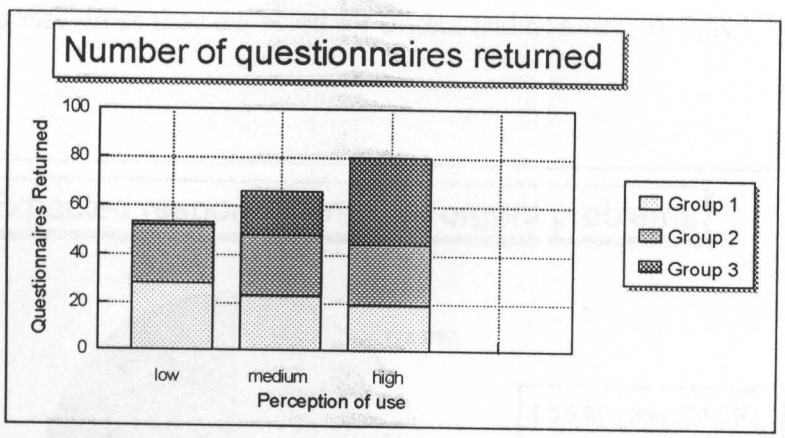

Figure 5.1 - Number of questionnaires returned

I think this raises some doubt about the accuracy of the data on PNMS which was used to allocate customers to groups. The information was extracted from PNMS and imported into Access. The totalling was done by sorting the data into name and departments and manually counting the number of records for each person. This could not be done by the computer because the names had been entered in various formats. However this information could have been inaccurate because:-

- The contact information is inconsistent. Names being spelt differently could have been treated as two different people and two people with the same name working in the same department would be considered the same person.

- Not all calls are logged. Calls which can be answered by the help desk staff and follow-up calls are not entered onto the database.

For this reason the questionnaire was not analysed by Groups as this information is unreliable.

5.2.1 Response Times

The present SLAs (Service Level Agreements) only include response times for schools, three hours, and for CheshireLink, two hours. With the limited access to PNMS by support staff it is not practical to specify response times for other types of support calls as it is not possible to measure if they are being met. Customers were asked what response times they expected for urgent and non-urgent calls.

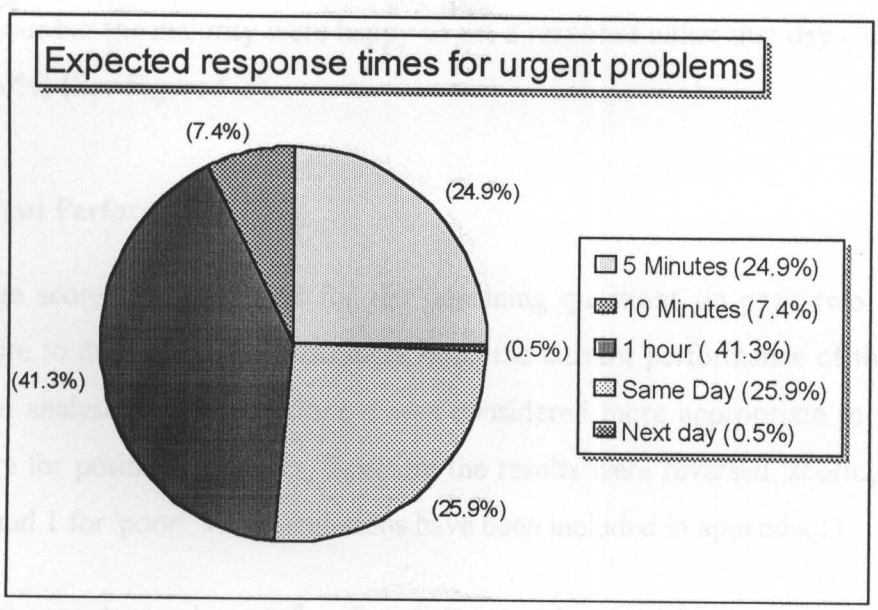

Figure 5.2 Expected response times for urgent problems

For urgent problems quite a large proportion of customers expected a response within 5 minutes (25%) but most expected it within the hour (73%) (See Figure 5.2). This was much shorter than the 2 or 3 hours specified in the SLAs.

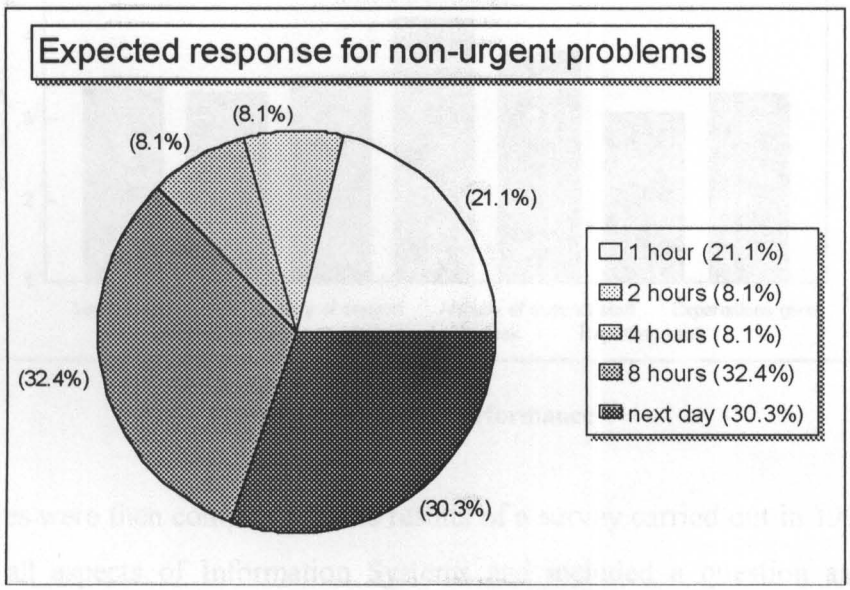

Figure 5.3 - Expected response times for non-urgent problems

For non-urgent calls a considerable number of customers (21%) expected a response within an hour but the majority were happy to get a response either that day (62%) or the next (30%) (See Figure 5.3).

5.2.2 Current Performance

The average score was calculated for the remaining questions on page two of the questionnaire to determine how customers rated the current performance of the help desk. When analysing these questions it was considered more appropriate to give a higher score for positive responses, therefore the results were reversed, scoring 5 for 'excellent' and 1 for 'poor'. The calculations have been included in appendix D.

The average scored was above 3 for all questions, with over 4 for the attitude of the help desk staff. The lowest score was for reporting back (See Figure 5.4).

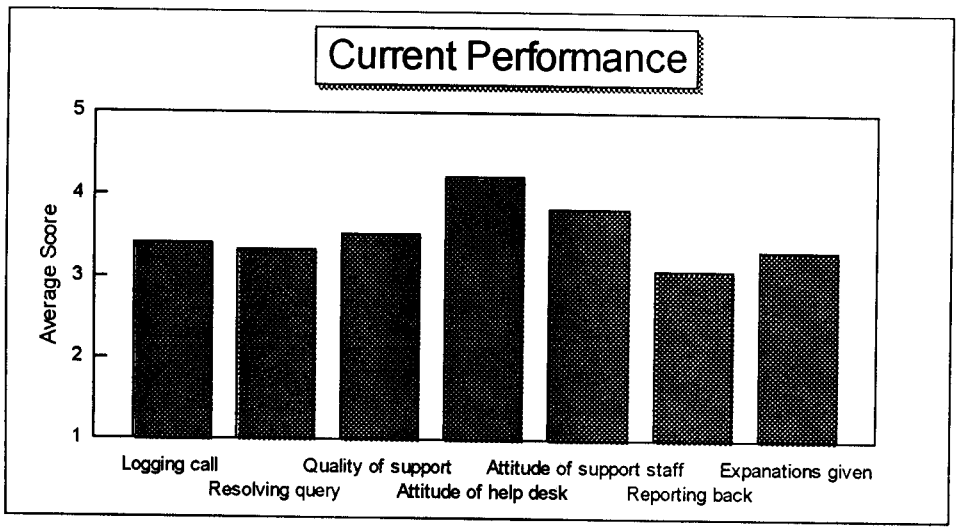

Figure 5.4 - Current performance

These scores were then compared to the results of a survey carried out in 1992 which looked at all aspects of Information Systems and included a question asking the customers to say how efficient they thought the support was from the help desk and other sections in Information Systems. The average score for each area was calculated (see Figure 5.5).

The average score for the efficiency of the help desk in 1992 and the score given for the attitude of help desk staff today are almost identical, 4.29 and 4.22 respectively. Although it is difficult to compare the other results as the questions were not the same, the overall scores are lower now than in 1992. This seems to indicate that the service has deteriorated during this time. This could be for a number of reasons:-

- The context of the question. The survey in 1992 included questions relating to all aspects of Information Systems and the question asking about the efficiency of support also included external companies. This could have improved the score of Information Systems relative to these organisations.

- Some customers contacted development staff and operations directly in 1992. This is now discouraged.

- The complexity of Information Systems and the number of products supported has increased making it more difficult to support.

- The number of users of PCs has increased.

- The expectations of the customers is higher. They are more aware of how Information Systems can be used within their area of work.

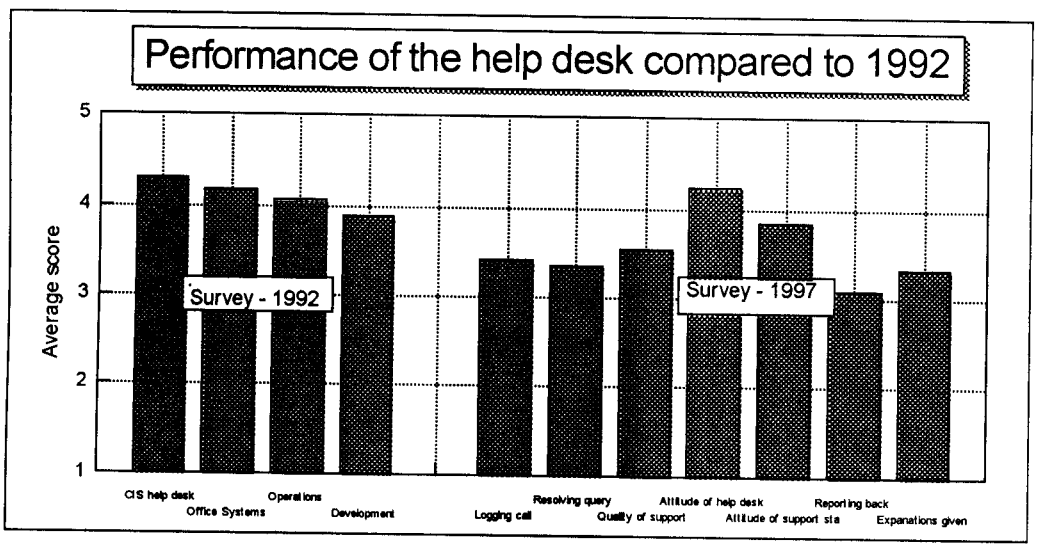

Figure 5.5 - Performance of the help desk compared to 1992

5.2.3 Priorities For The Future Compared To Current Performance

The average score was calculated for the first six questions on page three of the questionnaire to determine which aspects of the help desk the customers felt were more important. These were compared to the corresponding questions on page two to show how the current help desk performed in these areas and identify where improvements need to be made in the future. As with the performance questions it was considered more appropriate to give a higher score for positive responses, therefore the results were reversed, scoring 4 for 'high priority' and 1 for 'not important'.

Only questions which had valid answers for performance and importance were included and an average calculated. The scores for importance were normalised by multiplying by 1.25 to bring them into line with the performance scale of 1 to 5 and enable them to be compared against performance on a bar chart (See Figure 5.6). The graph shows the different aspects of the help desk in order of importance compared with the average scores for performance.

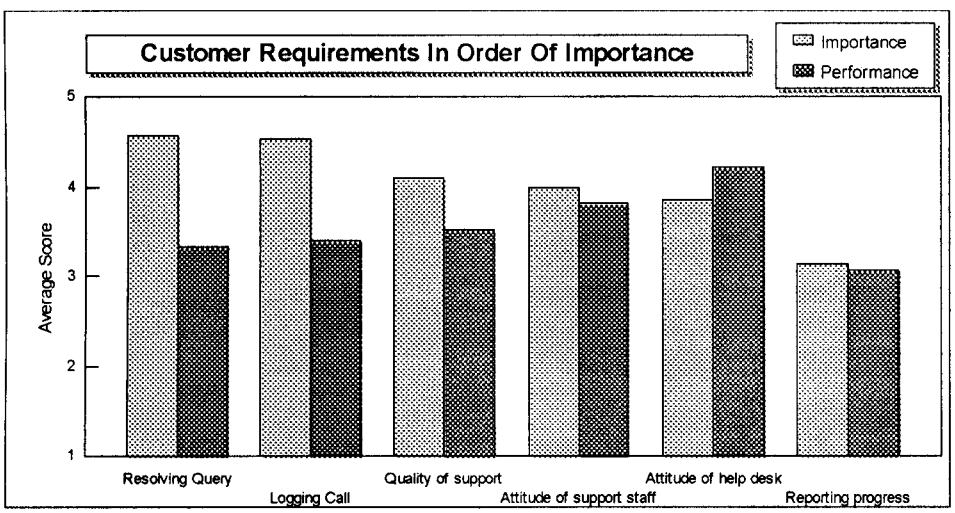

Figure 5.6 - Customer requirements in order of importance

These results show that:-

- All the aspects included on the graph were considered important with an average score of 4.

- Getting to speak to an analyst who was able to respond to the call and the time taken to resolve the call were considered to be the most important scoring over 4.5. However they did not score as well on the service currently offered, scoring 3.4 and 3.3 respectively.

- The attitude/response of the help desk staff got the best score of 4.2, better than the score given for its importance in the future of 4.0.

- Reporting back progress was the least important issue although it still scored 3.8 and the score of 3.1 obtained in performance indicates that there is room for improvement.

5.2.4 Self-Help

Customers were asked in the second half of the questionnaire their opinions on self-help, having access to more information to enable them to solve some of their own queries. These included training, recorded messages on network status and the use of an expert system to suggest solutions.

The results are shown in Figure 5.7.

Self-help did not score well compared to other aspects of the help desk, particularly the idea of using an expert system or finding out the state of the network by calling a voice response unit, where the majority of customers thought it would be useful but did not rate it as important. However these are new concepts and therefore difficult for customers to evaluate.

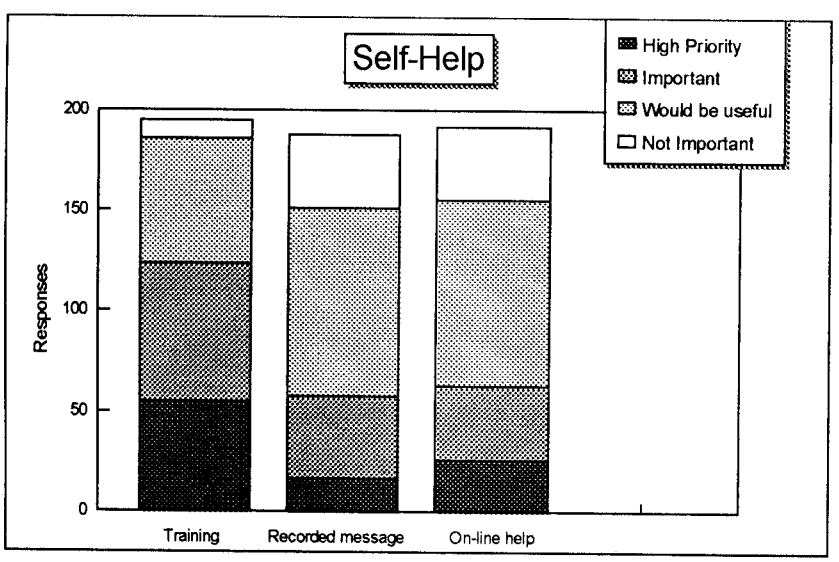

Figure 5.7 - Desirability for self-help by the customers

Training was considered a 'high priority' or 'important' by over 60% of customers, but even this is low compared to the other aspects of the help desk which were considered to be 'high priority' or 'important' by between 74% (Reporting back) and 100% (Time to resolve query).

This seems to indicate that the majority of customers would prefer to have Information Systems solve their problems than tackle them themselves.

5.2.5 Contacting the Help Desk

Three options were given on ways of contacting the help desk which customers were asked to prioritise in order of preference for urgent and non-urgent calls. Even though this question had been simplified as a result of the pilot, the number of customers who either failed to complete it or did not complete it correctly was high. As a consequence the results for non-urgent queries were ignored. Where a box was ticked for urgent queries this was interpreted as the first choice and the choice for non-urgent queries taken as second choice. This still left 37 (19%) of questionnaires which were excluded.

It was clear that customers preferred to talk with support analysts with only 20% of customers selecting e-mail as either their first or second option. The high number wanting to change the current system in favour of using an Automatic Call Distribution System was surprising but reflects the importance customers put on response times (see Figure 5.8).

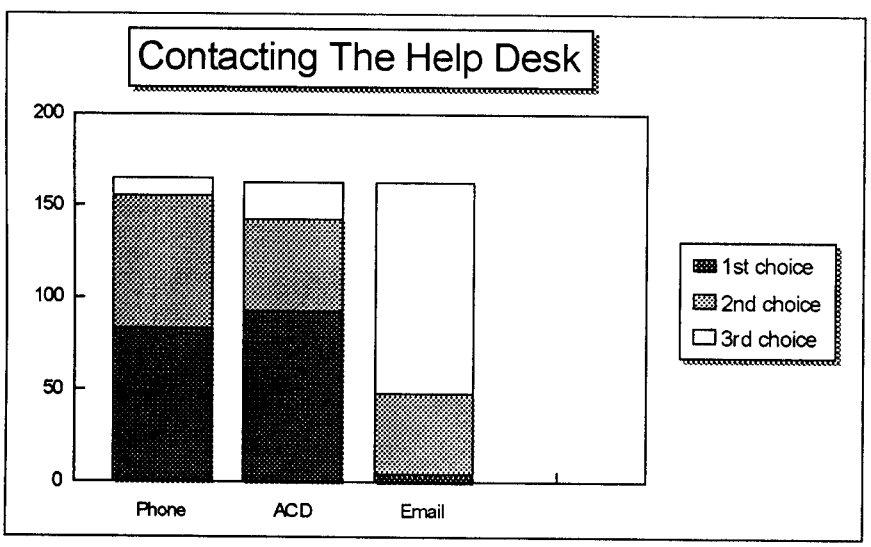

Figure 5.8 - Preferred methods of contacting the help desk

5.2.6 Comments

Over 50% of the questionnaires had comments added which supported the results of the analysis.

At least 20 customers re-emphasised the point that that they would like to speak directly to a member of the support team rather than be called back. For example:-

> *'Ideally I would like to ring directly to personnel at the IT Centre. It has proved inconvenient that I have to leave my work not knowing when someone will ring back to help me with my problem.'*

Some of these customers were from Backford Hall and could not see the logic in calling County Hall to be called back by a support analyst at Backford.

> *' A very frustrating situation exists when help queries are directed to County Hall only for them to be re-directed to Backford Hall. Their own Helpdesk worked very well and response times were usually excellent, problems often being solved over the phone. It seems a retrograde step to direct calls to County Hall even though there may be a need to log calls. This could be done locally. '*

There were many complimentary comments regarding the attitude/response of the help desk. These included:-

> *'Thank you for a prompt and efficient service'*
>
> *'I fully appreciate the response and work carried out by IS. I myself would find it difficult and time consuming should the process alter.'*
>
> *'Very pleased with the service. All problems solved - helpful assistance.'*

There was a request by several customers for an extension in the hours the help desk was available. This seemed to be particularly in the morning when staff who came in early could not get into the network.

> *'Is there any way of organising staff to get in for an 8am start. As quite a few members of staff come in at 7.45 they have to wait until 8.30am before reporting a fault'*

Other comments included several customers registering their dislike of call distribution systems, a lack of knowledge by support staff in new operating systems or packages e.g. Windows 95 and Microsoft Office, the requirement to prioritise calls and an improvement in feedback.

5.2.7 Summary

The most important aspect of the help desk to customers was the rapid resolution of their problem and the requirement to speak to a support analyst immediately for urgent problems.

The wide range of responses in how customers would like to log calls in the future reflected the broad spectrum of customers within the County. Many of them were in favour of the use of new technology to help solve their queries or log their call, providing it supplemented the help desk and did not replace it.

An Automated Call Distribution system was the preferred way of contacting the Help desk if it meant a direct line to the support analysts.

5.2.8 Customer Requirements

1. A response time of less than one hour for urgent calls and a day for non-urgent calls. The most important requirement was to talk to a support analyst quickly who understood their problem and if unable to solve it would give an indication of how it could be solved and when. This was evident from the expected response times, importance of help desk functions and from the comments.

2. Access to support during core hours. (7.45am - 7pm). This had not been included as a question but was commented on by several people as a requirement.

3. Feedback on outstanding problems and how they will be resolved. This was not considered as important as response times but the performance scores were relatively low and several customers commented on the lack of feedback and the inadequacy of the explanations.

4. Support staff with up-to-date knowledge of the operating systems and packages being implemented.

5. A list of FAQs (Frequently Asked Questions). Although on-line help did not score well on the self-help section of what customers thought was important, nearly 80% thought it might be useful and a request for a list of FAQs was mentioned several times in the comments.

6. A variety of ways of logging a call. The wide range of responses in the preferred method of logging a call and the strong aversion to using ACD (Automated Call Distribution) system by some customers indicates that they would like a choice. To encourage staff to use e-mail or ACD would require them to see some benefit, e.g. priority in getting support.

6. Evaluation Of Call Management Software

The following systems were evaluated against the requirements to determine if changing to another call management system would impact on the efficiency of the help desk:-

ServiceCentre (Peregrine Systems) - Character based (Current System)
ServiceCentre v1.4(Peregrine Systems) - Client Server version
SupportMagic v3 (MagicSolutions)
Helpdesk for Windows v4 (Royalblue)
Paradigm (CA)

There are currently over 200 packages on the market. If a decision is made to change from ServiceCentre further work needs to be carried out before a choice can be made. Other packages which get good reviews and could be considered are :-

Action Request (Remedy)
HeatProfessional (Bendata)
Vycor Enterprise (McAfee) - we already use software from McAfee

There are various organisations who evaluate help desk software or have consultants who will assist with choosing a package, all at a cost. These include the Help desk User Group and Gartner. Ovum Ltd offers an independent evaluation of 16 help desk systems for a cost of £1495. The packages include Heat, Paradigm, ServiceCenter, Action Request and Helpdesk for Windows. Unfortunately it does not include Support Magic.

6.1 ServiceCentre (Peregrine Systems) - Character based

This is the current system running on the mainframe and is still referred to in the County Council by its original name, PNMS.

6.6.1 Access

The number of staff having access to PNMS is limited to those in Customer Services, Environment, Network Support and Operations by the existing hardware and software.

The number of sessions available via the gateway from PCs to the main frame is restricted to 106. This includes all users in the County requiring access to mainframe systems. It is not unusual for all the sessions to be used preventing access to PNMS via the PC. This problem is solved in County Hall by using dumb terminals connected directly to the main frame but means staff need access to both a terminal and a PC to enable them to carry out their job.

An additional problem is the number of licences available for PNMS, currently 13 named accounts and 15 floating accounts, 10 of which are only temporary. Without the ability to have two calls open at once a user often needs two licences to enable them to update calls and log new calls simultaneously. This restricts access to PNMS, denying other support staff the ability to look at information or update calls allocated to them. This results in calls being closed several hours or even days after the problem has been resolved making it impossible to determine the level of service being given to the client.

6.1.2 Usability

For expert users manning the help desk, calls can be opened or logged quickly with the ability to select a category immediately or categorise the problem as the call is being taken. The screens have been customised for each category assisting the operator to determine the information required. A 'fill' function enables data to be selected from a list and related fields completed automatically reducing the errors and speeding up the entry of data.

Function keys have brief descriptions of what they do and the most relevant key is highlighted.

For new or casual users the system is difficult to use without training.

6.1.3 Functionality

The system is satisfactory for logging and updating calls and updating inventory information. Tickets can be quickly displayed if the ticket number is known, otherwise

searches can be slow. Reports are very difficult to set up with very little assistance from the system and have to be printed on the mainframe printer.

6.1.4 Summary

Although functionally the product is satisfactory for logging calls there is little scope for using the information when providing support without increasing the number of staff having access to it and improving the quality of the data. Calls are often closed several days after problems have been solved. The lack of a contact database and detailed subject codes make it difficult to extract the necessary information to manage the help desk on a day to day basis or make strategic decisions. Training needs and unreliable pieces of hardware and software cannot be identified from the statistics currently available.

6.2 ServiceCentre v1.4 (Peregrine Systems) - Client Server

6.2.1 Access

With the introduction of TCP/IP across the County it should be possible for all staff to have access to the system, limited only by the number of licences bought. It could either remain on the mainframe or be moved to NT.

A WebClient is available making the system accessible to everybody using a browser.

6.2.2 Usability

The evaluation copy of Service Centre 1.4 was a disappointment The system had a similar look to the text based version but with boxes round the fields. There were several problems including:-

- Buttons were part of frames and disappeared off the screen as the data was entered
- Filled fields were not automatically updated if the dependant field was changed
- The tab order was not logical.
- It was not MDI - only one ticket could be opened at once

Some of these problems could be addressed by customising the screens, but at a cost.

6.2.3 Functionality

Functionally the system met the requirements. A report writer was included which involved writing queries.

6.2.4 Cost

Software (Upgrade to ServiceCentre version 2 -Includes IR expert & Auto e-mail)	£24000
Consultancy (15 days)	£13200
Total	**£37200**

Optional

Hardware (if moving to NT)	£5000
Web Client	£4750
CTI	£1900

6.2.5 Summary

The system addressed the access problems but was not easy to use and would require customising. There are however cost advantages, only additional licences would need to be purchased. Since evaluating this product version 2.0 has been released which includes Crystal Reports.

6.3 Support Magic

6.3.1 Access

This is a client server system running under NT. It will be possible to access the system from all parts of the County attached to the County network using TCP/IP and is therefore dependant on the installation of TCP/IP. Licences purchased are concurrent. It has an MDI (Multiple Document Interface), allowing more than one ticket to be viewed at once, therefore each user only requires one licence. Access to the statistics and a list of open calls assigned to a user or their group using 'magic spy' does not require a licence. To extend the access to all clients with access to the Intranet, a Java version is available.

6.3.2 Usability

There were some inconsistencies between screens and did not always seem to comply with Windows standards, e.g. pressing <enter> when editing a screen tabbed to the next field, rather than executing the default button. It was not obvious whether the record is in edit or browse mode which I found confusing, particularly as this made the application respond differently - double clicking a contact in edit mode brought up a list of clients, double clicking the client in edit mode displayed the client record.

Icons at the bottom of the screen highlighted whether there were open calls or unread messages and seemed very useful.

Overall the interface was very pleasant to use with intuitive menus and icons.

6.3.3 Functionality

This product seemed to meet the requirements. All the databases and screens were customisable allowing fields to be added where necessary. It comes with standard reports and Crystal Reports to enable additional reports to be set up as required. Graphs showing the current workload can be run in the background to assist the supervisor manage resources. Summaries of problems can easily be printed or displayed on screen by support analysts.

6.3.4 Costs

20 licences	£31,340
Support	£ 6,883
Consltancy & training	£ 6,350
Hardware & operating system.	£ 5,000
Total approx.	**£50,000**

Support and maintenance charged at 17.5% / annum

6.3.5 Summary

This was a pleasant product to use and met the requirements.

6.4 Helpdesk for Windows Version 4

6.4.1 Access

This is a client server system running under NT. It is supplied with a Btrieve database but to use across a Wide Area Network (WAN) will need to use the Microsoft SQL Server or similar. All access to client server databases is via Open Database Connectivity (ODBC) which could impact on the performance.

6.4.2 Usability

The package was demonstrated by a salesman from Royalblue but due to pressures on the project an evaluation copy has not been obtained. Royalblue is a Microsoft Solution Provider and as such conforms to Microsoft design standards. During the demonstration it appeared to run slowly, especially moving between functions, this could be due to a number of factors but needs checking.

Further work is required to determine the usability of the product.

6.4.3 Functionality

The product appears to meet the requirements. The call tree displayed at the side of the screen gave a useful summary of client history, including hardware, training and past calls. The database and screens are customisable and Crystal Reports is included to enable additional reports to be written.

According to an evaluation by Ovum it is an "out-of-the-box product geared to small to medium sized help desks" and has "excellent call management particularly support for service level agreements." (Millhouse (1997)).

6.4.4 Costs

These were not available when this report was being prepared.

6.4.5 Summary

Without a copy of the software it was difficult to evaluate this product. Further work needs to be done if it is to be considered as a replacement for ServiceCentre.

6.5 Paradigm

Paradigm from Computer Associates was purchased by the County Council as part of a package. This was a system written to run under Unix AIX Version 3.2.x or 4.1.x and X-Windows v11. However it was not evaluated because the hardware and software were not available. They have just released an NT version and enquiries have been made on the possibility of replacing/upgrading the existing package. However the account manager from Computer Associates has not yet responded.

6.6 Summary

The introduction of TCP/IP across the County and the replacement of the current e-mail system with Microsoft Exchange gives the opportunity to consider changing the call management system. The current system does not meet the requirements because it is not accessible to all support analysts and statistics are difficult to extract and unreliable.

To improve the efficiency of the help desk it is necessary to be able to access reliable statistics both on a day to day basis and over a period of time to enable problem areas to be identified and addressed.

All the client server systems looked at seemed to meet the requirements, would enable access across the WAN and had a GUI interface making them easier to use. They all had interfaces to CTI and e-mail, problem resolution systems and a Web client was available to give the option of extending access to all users and customers.

They were all customisable giving the flexibility to extend the information where necessary, however this should be restricted to an absolute minimum to keep development and implementation costs to a minimum.

The current system does not meet the requirements of the customer or the user. Further work would be required to determine which package to replace it with.

7. Problem Resolution

7.1 Pilot study - Introduction of FAQ in Social Services

Social Services use a system called ProviderLink written by March Systems to assist with the ordering, scheduling, control and invoicing of services provided and the production of payroll advices for staff delivering the services. It is an Access system running either stand-alone or on small networks of 2-3 workstations in eight nursing homes within the County.

Over the six months, from the beginning of April to the end of September, 366 help desk calls have been received from Social Services, requiring a total support time of 170 hours. This does not include general support. A new version of ProviderLink was implemented at the end of May causing the large increase in the number of calls (See Figure 7.1).

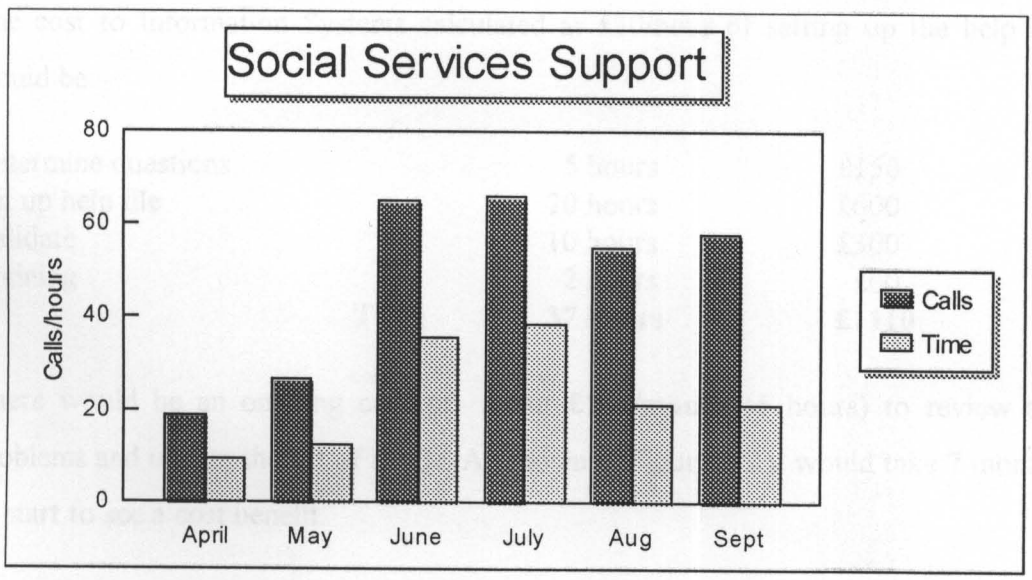

Figure 7.1 Social Services support

This pilot was to determine if the number of calls and the support time could be reduced by making a list of the most FAQs (Frequently Asked Questions) available to the users in a Windows help file.

The calls were entered into a spread sheet and a meeting held by the support team to determine which calls could be resolved by the users if they had details of a resolution. Potentially this could have reduced the number of calls by 71 (41%) and the support time by 26 hours (26%) for the four months from the beginning of April to the end of July.

It was agreed that the help file would be set up at the start of October to be used within the support team for the rest of the month to ensure the resolutions were correct before being implemented in the nursing homes at the start of November. The Information Systems co-ordinator in Social Services would provide training and encourage the users to refer to the FAQ before calling the help desk. The number of calls and support time would continue to be monitored over the next three months and compared to the previous statistics, noting any upgrades or other changes which would impact on the number of calls.

The cost to Information Systems calculated at £30/hour of setting up the help file would be:-

Determine questions	5 hours	£150
Set up help file	20 hours	£600
Validate	10 hours	£300
Training	2 hours	£60
Total	**37 hours**	**£1110**

There would be an ongoing cost of about **£150/month** (5 hours) to review the problems and update the list of FAQs. As shown in Figure 7.2 it would take 7 months to start to see a cost benefit.

The potential benefits are:-

- Reduction in support costs, although this did not appear to be as much as originally thought.
- Less down time - users would not have to wait for an analyst to call back.

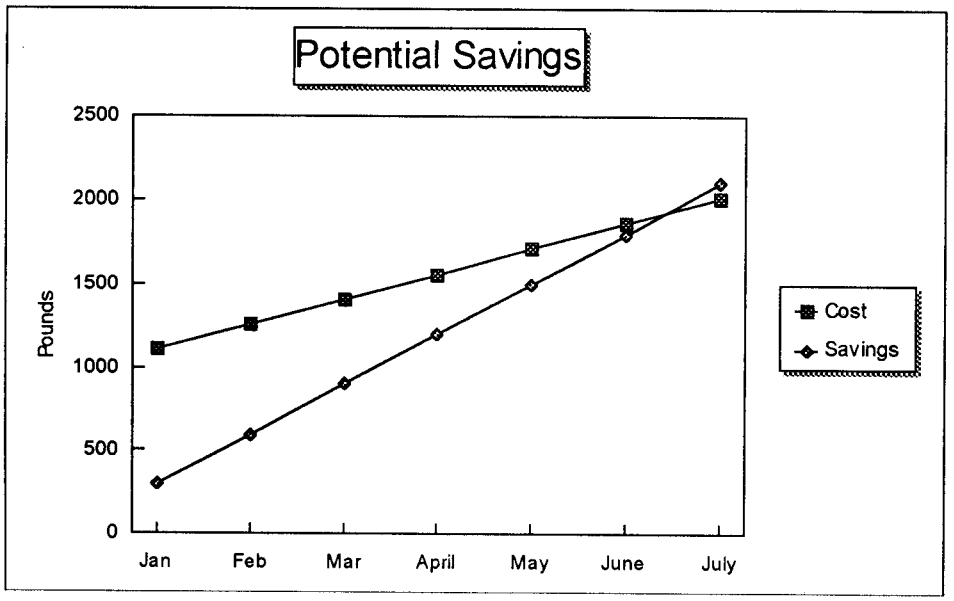

Figure 7.2 - Potential savings from implementing a list of FAQ in Social Services

This pilot was not completed because the pressure of supporting ProviderLink and current shortages in staff resulted in the continual postponement of setting up the help file. The failure of implementing this pilot within the agreed timescales did in itself highlight the investment and commitment needed to introduce problem resolution systems.

The potential savings were not as high as first thought, identifying a need for careful analysis of statistics before investing the time setting up help systems. Larger savings could be made in areas where there are more users e.g. schools.

If we are to become more proactive in our support of Information Systems then time must be scheduled to identify the source of the problems and implement a resolution system.

7.2 Monitoring the use of Technet and use of Hewlett Packard as third level support

There have been delays in setting up the third level support and use of Technet. With the replacement of the Service Centre Manager and the reorganisation now planned for the help desk it is difficult to monitor the effect that these products might have.

8. Conclusion

The Customer Services Help Desk is currently mainly reactive, responding to problems as they occur and solving each problem in isolation. Manual recording of problems and resolutions by individual support teams gives the opportunity for using the information to solve similar problems in the future but is limited because there are no methods of searching the information and largely relies on support staff remembering that the problem has happened before.

If the use of information technology at the County Council is to become more efficient then customer services must become proactive, investing more effort into preventing problems occurring. Problems are not only expensive to solve but also increase the costs in departments, with time wasted by customers trying to solve their own problems or waiting for Information Systems to solve them. In the area of Information Technology there will always be new problems because of the continual changes being introduced but this makes it even more important for the help desk to tackle problems at source to prevent the number of calls continuing to rise.

Modern help desks must take a lead in identifying the strengths and weaknesses of software, hardware and suppliers, resulting in better management of contracts, a more informed purchasing strategy and better advice, including training needs, to the customer. Marcella and Middleton(1996) summarise the differences between the traditional help desk and the modern help desk (see Figure 8.1).

Traditional help desk:	**Modern help desk:**
• Reactive	• Proactive
• Fixes the *results* of the problems, not the causes	• Fixes problems *at source*
• A dead end: - for information - for careers	• **Gathers** and **disseminates** information
• Technically oriented staff	• Provides a worthwhile career path
• Isolated	• Customer service oriented staff
• No influence on matters external to help desk	• Integral
• Struggling for resources	• A key motivator and aid to management decisions
• Passive - awaiting customer approaches	• Justifies resourcing
• Demand driven	• Aggressive - marketing its services
• A backroom function	• Strategy driven
	• The public face of the organisation

Figure 8.1 - Differences between the traditional help desk and a modern help desk

This project has identified the following new technologies which could be used by the help desk in providing a more efficient service:-

- *Call Centre software*

Replacement of Service Centre text based system with a client server package would give access to all support staff across the County. This would reduce the overhead of the help desk having to phone support analysts with details of calls and make customer information, including inventory information, available to the support analyst. Support Magic, Helpdesk 4 and Servicecentre 2 all had a GUI interface, were customisable and enabled support staff to keep track of open calls. The number of calls assigned to each analyst could be monitored by the supervisors to enable them to manage their staff.

Crystal reports is included as a report writer and each package comes with a number of standard reports written. To identify problem areas, statistics need to be monitored continuously on the number of calls, the subject and the spot rate i.e. how many tickets are being resolved on the first call. Without this information it is impossible to determine problem areas which need to be looked at or determine the performance of the help desk.

To gain the benefits from these systems the information must accurate. A contact database must be set up and maintained and subjects or categories of problems chosen to enable meaningful statistics to be produced.

- *Problem Resolution Software*

Knowledge packs supplied by companies such as Serviceware can be searched from within the call centre software to increase the breadth of knowledge of the staff on first line support, assist other support staff and possibly enable customers to solve some of their own problems.

Although they appear to be the ideal solution and have been shown to potentially increase the number of calls solved on the first call I found no evidence from any

independent organisations. Companies who supply this software make extravagant claims such as:-

> *'Already, hundreds of companies and hundreds of thousands of people world-wide rely on Inference's family of CBR products to improve the speed and accuracy, and productivity of business.'* (Inference Corporation 1997)

> *'Whether you are an implementor, a support staff technical specialist, or an independent consultant, TechNet is indispensable'* (Microsoft 1997)

> *'The results of the survey clearly show that on-line knowledge is a critical component in the success of the help desk, providing several quantitative benefits including an improvement of 22% in first-call resolution rate.'* (ServiceWare Inc. 1995)

An organisation I visited who have recently installed Magic, claim to find little use of the knowledge bases supplied as the majority of their problems are with the specialist software packages not desktop systems or operating system. They do however intend to build their own knowledge base of current problems and are expecting to see returns on their investment very quickly.

It is management's intention to rotate staff between the Service Centre and other teams within Information Systems. This together with the need to increase the number of problems resolved on the first call to become more efficient will make the use of knowledge bases, both of proprietary software and ones built ourselves, necessary. It is vital that the time is allowed to set them up and validate the resolutions to enable the potential savings to be realised in the future.

Providing users with a list of FAQs to enable them to resolve their own problems was a requirement of some customers but as shown in the pilot requires a commitment and investment by Information Systems to implement and maintain. Statistics must be analysed to determine if there will be any benefit.

- *Computer Telephony Integration.*

Having the capability to create tickets for users based on their telephone number has advantages but only if the contacts database is up to date. At present this is difficult because of the reorganisation but could be considered in the future.

The requirement by customers to speak directly with support staff and the preference by more than 50% of them to use an ACD system than wait to be called back would indicate that this could improve the spot rate and the service offered to the customers. It is only practical however in areas which have dedicated support staff, e.g. schools and desktop. Publishing the numbers to key on the telephone would enable customers to use the system without listening to the whole message, making it more acceptable.

- *Intranet*

Giving customers access to the call logging system and problem resolution systems via the Intranet would allow them to log their own problems, look at progress on open calls and possibly resolve some of their problems. Many of the call centre packages include a Web client, making it relatively simple and inexpensive to extend access to all staff. Until the Intranet has been established it is difficult to measure its impact on Customer Services.

- *Standardisation*

It is impractical to continue to support all systems on all platforms when the County Council is downsized in April 1998. This has already started to be addressed by standardising on Microsoft Office 97 and Exchange. The savings which could be made by moving to a client server environment and implementing 'thin clients' where practical cannot be ignored. This would give the control and security of the mainframe and the GUI interface preferred by most users.

9. Recommendations and Further Research

9.1 Recommendations

9.1.1 Call Management

- Improve the quality of the data within the call management systems, in particular the contact information and subject list. Entering names and addresses free format makes it difficult to analyse the data.

- Select a replacement call management software package. A detailed evaluation of each package should be made. As far as possible this should be implemented out-of-the-box keeping development costs to a minimum.

Benefits

The Support Supervisors will be continually aware of the work loads of their staff and of problems which have been escalated and are now critical. This will enable them to manage their staff resources and to ensure, where possible, problems are resolved within the time scales agreed in the Service Level Agreements.

Statistics can be produced to enable management to make informative decisions and the Customer Services Department become pro-active rather than reactive in its support of IT in Cheshire. The reporting facilities in the current call management software are difficult to use, the query facility is slow and the data, (particularly contact information) is inconsistent, making the information of little value. A number of standard reports are included in all the packages evaluated and additional reports can be set up using Crystal Reports. Statistics required include:-

- Number of calls at different times of the day or times of the year and spot rate (number of calls resolved at the first level). These statistics can help management calculate the number of staff required to man the help desk and the organisation of Customer Services.

- Number of Calls by subject, hardware manufacturer and customer to enable training needs to be identified and purchasing strategies to be made.

- Performance against Service Level Agreements.

- Response times of outside contractors and suppliers to ensure that they are fulfilling their contracts.

The systems were all Windows based with a GUI interface and would therefore be easy to use for occasional users, reducing training costs and improving the accuracy of the information. There were shortcut keys for expert users.

Magic and Helpdesk both had a Multi Document Interface enabling a user to open more than one window at once without requiring multiple licences

The system could be accessed from all sites within the County after the implementation of TCP/IP

Costs

All the systems evaluated would cost about £50,000 for software, hardware and consultancy plus IS development costs which are dependant on the amount of customisation required.

9.1.2 Problem Resolution

- Implement a knowledge based problem resolution system. Access to proprietary knowledge bases and building of specialist knowledge bases was either included or an optional extra in the call management systems evaluated, therefore is dependant on the package selected.

- Set up specialist help systems for customers e.g. a list of FAQs, where it can be shown to be beneficial.

- Encourage staff on the help desk to answer calls by using the problem resolution systems. This will require staff to have basic technical knowledge as well as knowing how to deal with customers.

Benefits

Decrease the number of support staff because:-

- The spot rate could be increased from the current 50%, a rate of 85% should be achievable. As demonstrated in Section 3.3, answering a greater proportion of the calls at the first level reduces the number of support staff required

- The number of calls can be reduced. Customers will be able to solve some of their own problems reducing their dependence on the help desk for routine tasks.

- The time taken to resolve queries will be reduced. Access to past problems should enable first and second level support staff to solve similar problems in a shorter time.

Increased customer satisfaction. An increase in the spot rate will also improve customer satisfaction.

More flexibility in staffing. Providing a specialist knowledge base is built up the support team will not be so dependant on the skills and knowledge of individual members of staff.

Staff on the help desk will have a more satisfying job and better opportunities for career development.

Costs

Staff training and staff grades would need to be reviewed.

Development time to set up FAQs and knowledge bases.

Cost of proprietary knowledge packs.

9.1.3 Call Distribution System

Implement a call distribution system to enable callers to select the support area. The survey highlighted a requirement by the customers to be able to contact the support analysts directly and were frustrated by the present system where they are called back often several hours later. This facility would be particularly useful in Schools Support and Desktop Support where there are always staff allocated to answering support calls.

9.1.4 Give wider access to system

Giving wider access to the call management system, including customers, who should be able to check progress, log calls and access problem resolution systems. This will enable customers to check progress on calls without contacting the help desk. Access by customers can be achieved by installing Web access to the system enabling them to access and update information using a browser.

9.1.5 Standardisation of both hardware and software

This is already being addressed by installing Office 97 in all departments to replace SmartSuite, WordPerfect and previous versions of Microsoft Office.

With the reduction of staff next year, the introduction of 'thin clients' should be a serious consideration, especially in areas such as payroll where powerful PCs are not required.

9.2 Further Research

Further research could be done to:-

- Identify the extent to which the new technologies, particularly the problem resolution systems, reduce the number of calls.

- Investigate further the benefits of integrating the system with CTI and using e-mail to log calls within the County Council. These options are dependant on the implementation of the call management system, accurate contact database and the replacement of the County's e-mail system with Microsoft Exchange.

- Review the impact of any changes made on the efficiency of the help desk in Cheshire.

- Ascertain whether the requirements of the customers are addressed by the changes by sending out a similar survey in the future.

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Appendix A

Information Systems Help Desk
Customer Survey
(Copy)

I have been commissioned by the EiS Service Centre Manager to review the current Service Centre help desk in an attempt to improve our services to you in New Cheshire. I would be very grateful if you could spend a few minutes completing this questionnaire and returning it in the envelope provided to me at this address:-

Shirley Thomas
Information Systems
Goldsmith House(5th floor)
Chester

There are two parts, the first is to determine how the help desk performs at present and the second is to determine what you consider is important in the future.

On completion of this survey the results will be included in a management report identifying requirements for the IT help desk to be set up in New Cheshire. All responses will remain anonymous.

Please can you return the questionnaire by 31st October.

Thank you for you help.

Shirley Thomas

Information Systems Help Desk
Customer Survey

	0-5	5-10	> 10
Approximately how many times have you contacted the help desk since January 1997?			
What response time do you consider reasonable for:- non-urgent queries urgent problems	---------- ----------		

The following questions refer to the service ***currently offered*** by the help desk. Please score each question on a scale of 1 to 5.

	Excellent	Very good	Satisfactory	Room for improvement	Poor
	1	2	3	4	5
Time taken from logging call to speaking to member of support staff.					
Time taken to resolve query.					
How do you rate the quality of the support? - Are problems resolved to your satisfaction?					
What is the attitude/response of staff on help desk? Were they polite, helpful etc.?					
What is the attitude/response of support staff? Do they explain the solution in a user-friendly way?					
How do you rate the reporting back of progress on your problems?					
When asking for advice, how do you rate the explanations given by support staff in helping you solve similar problems in the future?					
Comments					

Information Systems Help Desk
Customer Survey

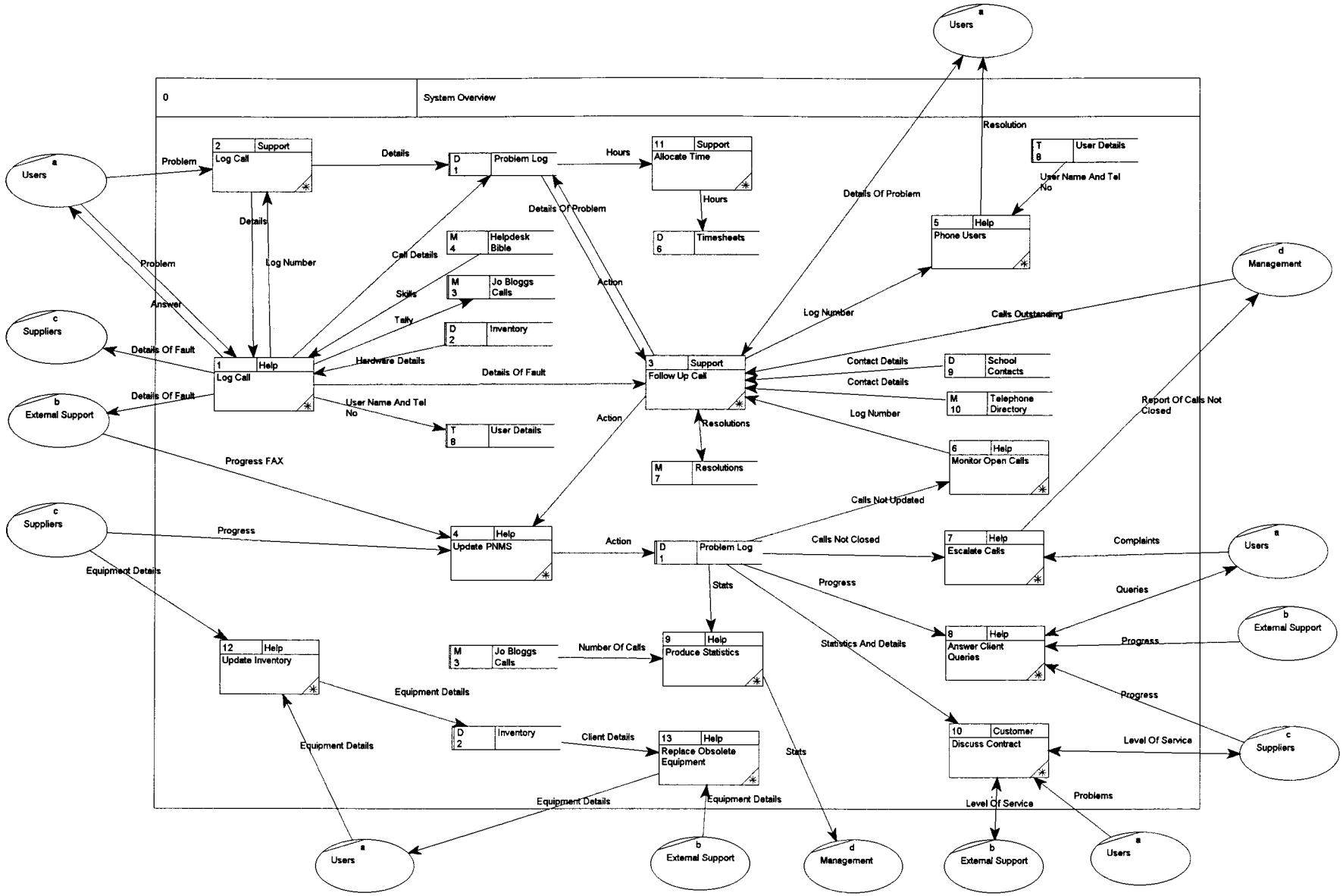
The following questions refer to the level of service you would like ***in the future.*** How important are the following statements to you? Please score each question on a scale of 1 to 4.

	High priority	Important	Would be useful	Not important
	1	2	3	4
Time taken from logging call to speaking to member of support staff.				
Time taken to resolve query.				
Quality of information given.				
Attitude/response of staff on help desk.				
Attitude/reponse of support staff.				
To be kept informed of progress.				
Training to reduce the number of problems/queries.				
Recorded message with details of status of the network, including network problems and when they are expected to be resolved.				
Self help. Access to on-line help . By answering a series of questions the system would suggest the solution.				

How you would prefer to contact the help desk in the future? Please rank the following ways in order of preference, 1 to 3.	Urgent problems	Non-urgent problems
-Phone help desk and support staff phone back within agreed time limit. (as at present).		
-Phone help desk and select problem area using phone. Connect directly with support staff. e.g. press '1' for printer problem. (Initial call will take longer but some problems will be solved immediately)		
-Use Email or FAX. Complete a form describing problem. Support staff either phone back or Email/FAX solution		
Comments		

Appendix B

Help Desk - Physical Data Flow Diagram



Process Descriptions - Physical

Process Number 1 **Name** LOG CALL
Location Help Desk

Calls are received by the help desk from users requesting help.

If the call is from a school the details are checked to ensure they are eligible for support by entering the name of the school - 'SLA' (Service Level Agreement) must be equal to 'YES'. All other sections which are part of the County Council are automatically eligible for support, therefore, providing the user gives a valid group/section, the call will be taken.

Calls are dealt with according to the type as follows:-

Straightforward enquiries which can be resolved by help desk staff	Answer query Increment "Joe Bloggs" calls
Error in software supported by EiS at Backford	Open Call as 'application'. Allocate call Phone if urgent
Error in software supported by EiS at County Hall, Goldsmith House and Commerce House	Open Call as 'application'. Allocate call using list of skills in 'Help desk bible' and phone member of staff with the details and log number.
Network failure (e.g. LAT disconnects) or Problem accessing CICS	Open call as 'operations'. Phone network support or Operators. For subsequent calls increment count of "Joe Bloggs" calls and take callers name and number.
Problem or advice required in using PC packages or PC, including calls from schools.	Open call as 'desktop' Call will be automatically allocated to Sales & Office Support.
Hardware problem	If the fault is a hardware fault open the call as 'pcfaults', however if there is any doubt the call should be opened as 'desktop' to enable Sales & Office Support to check it out first. For all calls opened as 'pcfaults' the inventory should be checked to ensure hardware is still under guarantee or covered by maintenance agreement. If under guarantee, pass details to supplier. If under maintenance, pass details to external support
Problem reported by a school using education packages e.g. SIMS, LRM	Open the call as 'schools' Call automatically allocated to either LRM or general accounts

Problem with telephones	Open the call as 'pcfaults' and refer to the 'helpdesk bible' to determine where to pass the call. Phone.
Request for CheshireLink purchase or upgrade. Quotations and sales	Open call as 'desktop' Call will be automatically allocated to Sales & Office Support
Request for password reset-mainframe only	The name and telephone number are checked. Providing they are correct and the old password has not expired due to lack of use, the password is set to 'dummy' and the number of "Joe Bloggs" calls incremented. If password cannot be changed for any reason the call will be opened on PNMS, assigned to 'application'and the passed to the mainframe team.
Password change - CheshireLink and CheshireLink + Mainframe. Requests for external mail/FAX Problems with CheshireLink	Open call as 'cheshirelink' within 'Sales & Office Support'
Error with Local Area Network	Open call as 'netware' Phone communications with details of call and log number.

Process Number 2

Name LOG CALL
Location Support

For problems reported directly to a member of the support team, the support team will be either phone or e-mail the help desk with the details. The help desk will open the call, or if the problem has been resolved log the call, and allocate it to the caller. Support staff do not have the authority to open or log calls.

Process Number 3

Name FOLLOW UP CALL
Location Support

Support staff with access to PNMS

Backford Hall, Network Support, Schools Support and Customer services each have either one or two accounts to which all calls are assigned. For each account a terminal is permanently logged into PNMS displaying the status of all calls assigned to it. These are manned during normal office hours.

Details of the call can be accessed from PNMS.

Process Descriptions - Physical

The client will be contacted as agreed in the SLA or as agreed on an informal basis. For 'desktop' problems this is 2 hours for schools and 15 minutes for all other calls.

Occasionally, if the member of staff responding to the call remembers a similar problem or the client refers back to a previous call, PNMS is used to refer back to determine how the problem was resolved.

Schools support keep a manual of problems for future reference. They also use their old system to access details of contacts at schools.

All tickets will be updated to show what action has been taken and how the problem will be resolved. For tickets assigned to desktop the initials of the member of staff updating the ticket are included as part of the description.

If a call is to be re-allocated, agreement must be sought from the member of staff being asked to take the call before the ticket is updated.

Calls in sales and support which require a visit and are non-urgent or out of Chester will be re-allocated to a Senior Support Officer to be scheduled.

Calls in schools support which require a visit will be scheduled. (When a school is visited a three part form is completed with the details of the visit and the amount of chargeable time. The top copy is left at the school. The pink copy is detached and the details checked against the SLA and entered into an e-mail sent to Business Development who will raise the invoice. The pink copy is then filed in schools support. The original remains in the book.)

When the problem has been resolved PNMS will be updated to show the call has been closed.

If the resolution affects other users the help desk will be informed.

Support staff without access to PNMS.

The details of the call will be given over the phone by the help desk. The user is called within 8 hours for further information and to agree a strategy for resolving the call.

The help desk will be contacted either by Email or phone with details of action being taken.

When the problem has been resolved the help desk will be contacted to close the call.

Some of the development teams (e.g. Providerlink) keep a manual log of the calls and their resolution for future reference.

If the resolution affects other users the help desk will be informed immediately in order for them to contact users affected.

Process Descriptions - Physical

Process Number 4

Name UPDATE PNMS
Location Help Desk

Support staff without access to PNMS, including external support staff and suppliers, notify the help desk of progress by phoning the help desk or sending a Fax or e-mail. The help desk updates PNMS with the details.

Process Number 5

Name PHONE USERS
Location Help Desk

If a problem affected a number of users e.g. network down, users who called the help desk will be contacted when the problem is resolved.

Process Number 6

Name MONITOR OPEN CALLS
Location Help Desk

Every afternoon details of all calls logged the previous day but have not been updated will be extracted from the problem log - this is a scheduled report. An e-mail is sent to the member of staff allocated to the call asking for update information.

Process Number 7

Name ESCALATE CALLS
Location Help Desk

Scheduled reports have been set up for team leaders to report open calls. The frequency of the reports is determined by each team leader, either weekly or daily.

A report of all calls still outstanding after three months is run on a weekly basis and is sent to the Help Desk Supervisor.

A number of other reports have been set up to run daily, weekly, monthly or quarterly. Adhoc reports are set up as required.

Each department has a different Service Level Agreement. It is the responsibility of the team leaders to ensure we are responding within this agreement.

Process Descriptions - Physical

Process Number 8 **Name** ANSWER CLIENT QUERIES
Location Help Desk

Queries about progress in resolving problems, including complaints, will be answered by searching for the original problem ticket and if necessary contacting the member of staff or external company the call was assigned to. If the user is not satisfied the problem will be dealt with as a complaint, see QMS complaints procedure.

Process Number 9 **Name** PRODUCE STATISTICS
Location Help Desk

Statistics are produced on a monthly basis. These include total calls broken down into time taken to resolve.

Adhoc queries are set up and run on request.

Data can be exported and used as input to Easytrieves.

Process Number 10 **Name** DISCUSS CONTRACT
Location Customer Services

The level of service being provided by external suppliers is reviewed on a regular basis. Any problems or complaints from clients are discussed and if possible a resolution agreed.

Process Number 11 **Name** ALLOCATE TIME
Location Support

Every month a report is printed of time spent on support by sales and office support staff. This is totalled for each client and a bulk adjustment made on time recording to the client's support code to ensure they are charged.

Support staff in development code their time directly to the time recording system.

Process Number 12 **Name** UPDATE INVENTORY
Location Help Desk

Details of new equipment are entered onto the inventory database, including details of warranty or whether it is included in the County's maintenance contract.

Process Descriptions - Physical

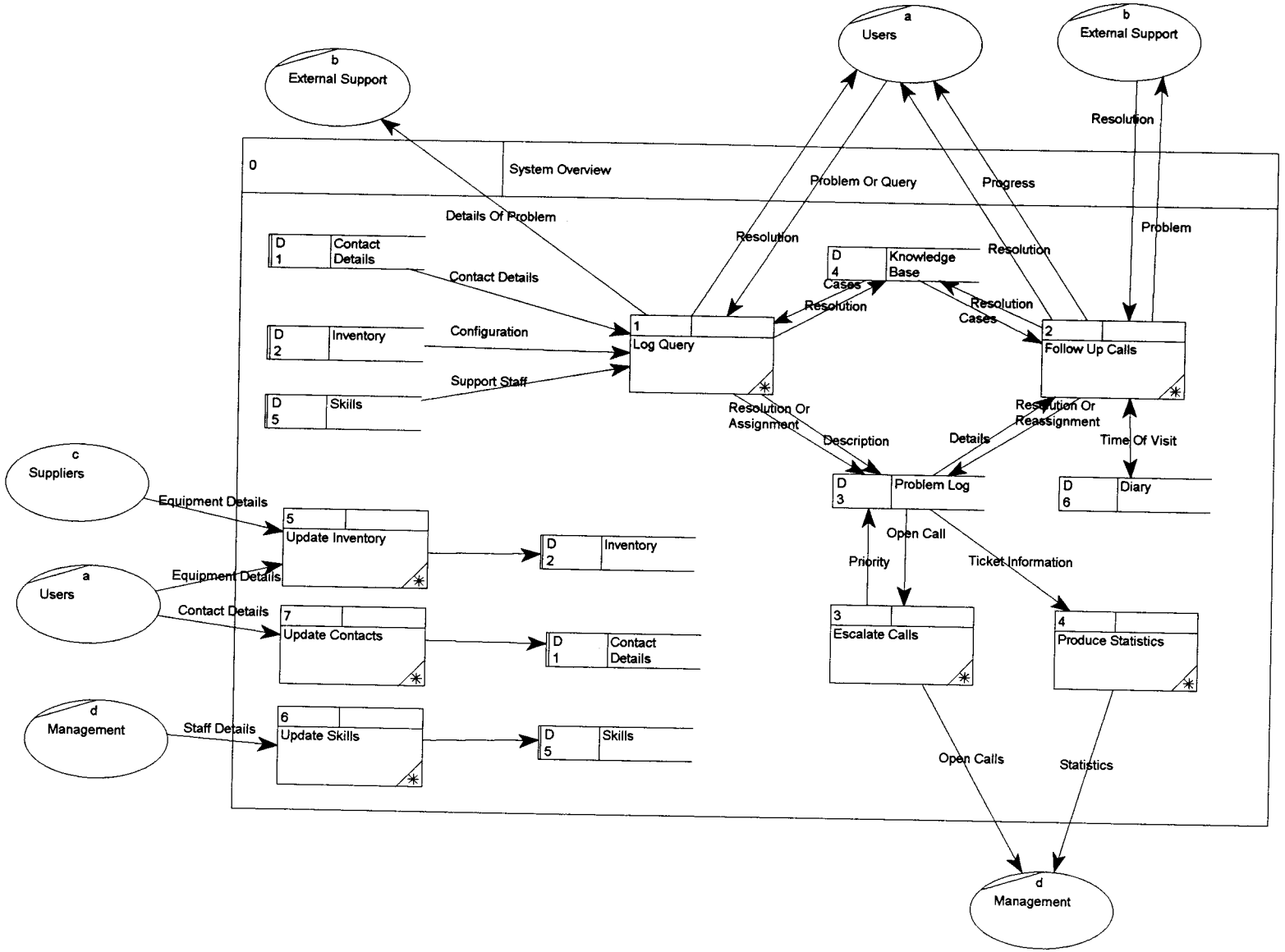
Process Number 13 **Name** REPLACING OBSOLETE HARDWARE

Location Help Desk

If the company maintaining all the hardware can not fix an item because, for example, the parts are no longer available, they will lend the client another piece of kit for 3 months while the client arranges for a replacement and inform the help desk that they are no longer willing to support the item. The help desk will identify all other owners of the item from the inventory and inform them that the item is no longer supported.

----------End----------

Help Desk - Logical Data Flow Diagram



Process Descriptions - Logical

Process Number 1 **Name** LOG QUERY

Enter client details - this could be automatic either using e-mail or from phone if CTI is available.

Determine if valid call by ensuring:-

- The client is eligible for support (Check SLA)
- For hardware faults check item is covered by warranty or maintenance contract.
- The service requested is one of the services offered.

If invalid calls log the call as invalid.

For valid calls check information automatically filled is correct, including service, telephone number and if applicable configuration details. If call already logged bring up details and if necessary reopen ticket, otherwise open new ticket.

If possible answer call using :-

- Own expertise
- Knowledge bases

then update resolution and close ticket.

If problem and resolution not on knowledge base, add.

If not possible to answer within time limit agreed, assign call to specialist and determine priority. For urgent calls phone/page specialist.

Process Number 2 **Name** FOLLOW UP CALLS

Access list of calls assigned to you as an individual or as part of a group.

Solve problem or answer query. This can be over the phone, by e-mail, by connecting to the clients PC remotely or by visiting the client. Use knowledge bases, external support and manuals to help resolve the query quickly.

If solved, close call and where applicable update knowledge base.

If not solved update progress and where applicable reassign call, set alert date or schedule visit.

Process Number 3 **Name** ESCALATE CALLS

Identify calls which have not been updated and calls which have been open for a long time and check progress. Where necessary increase the priority of the call.

Process Descriptions - Logical

Process Number 4 **Name** PRODUCE STATISTICS

Print statistics to enable all levels of management to monitor the effectiveness of the help desk and ensure calls are dealt with within the terms of the SLA. Standard reports will be scheduled to run on a regular basis.

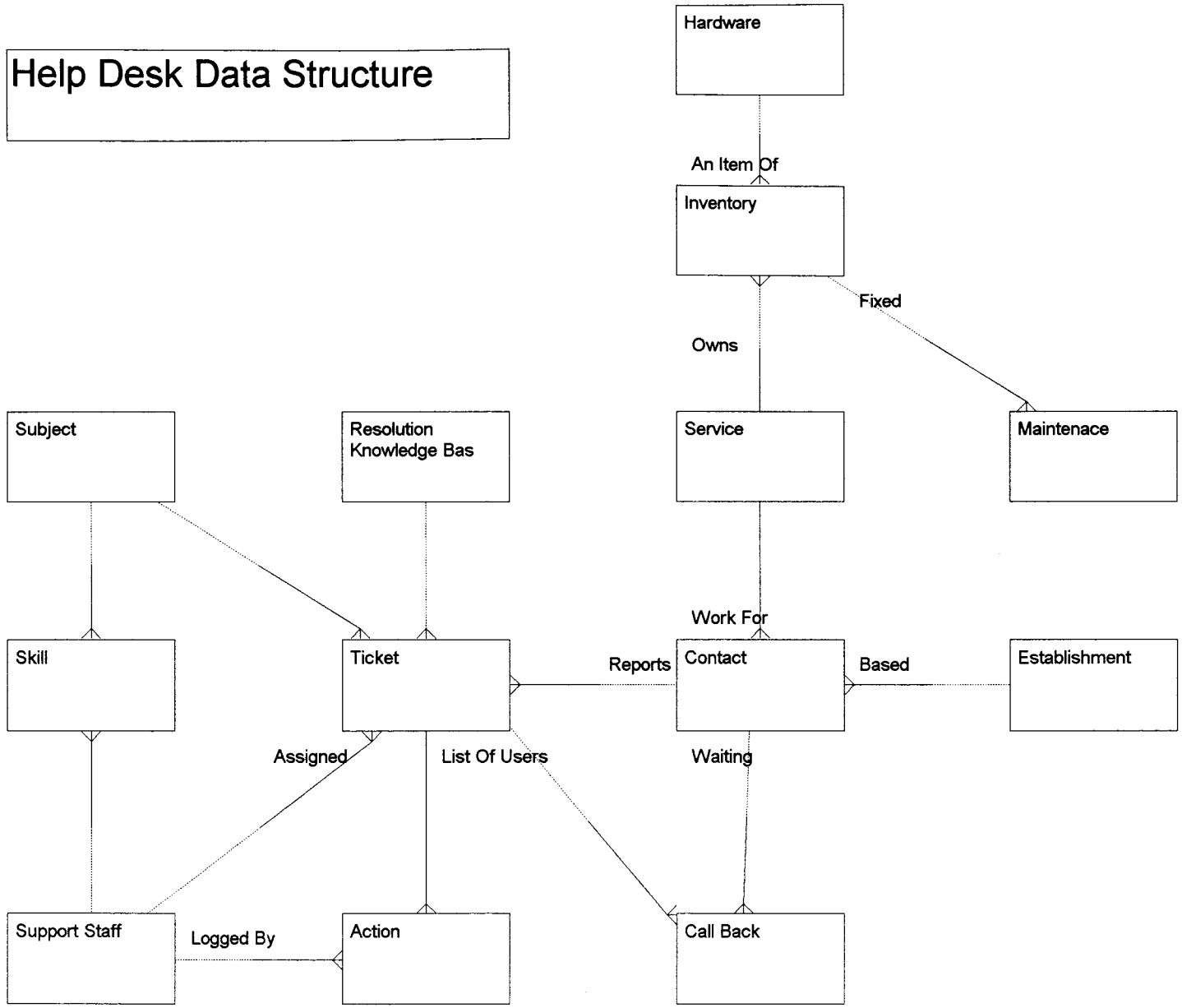
Process Number 5,6&7 **Name** UPDATE DATABASES

The inventory, contact details and skills file must be updated as necessary.

----------End----------

Appendix C

Help Desk Data Structure



Entity Descriptions

Further detailed analysis is required to ensure these tables are complete before implementing them.

Tickets

One record for every new problem

**Ticket Number
*Contact
Subject
Problem Description
Resolution
*Assigned to
Priority

Action

These can be standard actions e.g. call logged or call closed, or can specific details of a telephone call etc.

**Ticket Number
**Date
**Time
Action Description
Duration
Support Time
Updated by

Contact

File of all staff in the County

** Contact Reference
Name
*Establishment Number
Telephone Number
E-mail
FAX
*Service

Entity Descriptions

Staff

Physically part of the staff file as staff can be support analysts and contacts

**Reference
Name
Telephone Number
E-mail
FAX

Establishment

Buildings within the County e.g. schools

**Establishment Number
Establishment Name
Address

Service

Service groups within the Council

**Name
SLA details
Group
Charge Code

Call Back

A list of contacts reporting the same problem who need to be informed when it is resolved

**Ticket Number
**Contact Reference

Skill

File identifying skills to enable calls to be assigned.

**Staff Reference
**Subject
Level

Entity Descriptions

Inventory

Equipment owned by a Service

**Stock Reference Number
*Hardware Code
Date purchased
Warranty details

Maintenance

List of problems including details of repair

**Stock Reference Number
**Date
**Time
Action Description
Updated by

Lookup tables

In addition to the previously described entities the following look-up tables will be set up:-

Approved hardware
Subject List
Knowledge Bases

----------End----------

Appendix D

Customer Services Questionnaire - Analysis of Results

The following tables list the responses to the questions on the Customer Services Questionnaire.

Contacted help desk

Table showing the frequency of use against the group.

Question Group	No response	0-5	5-10	> 10	Row Summary
1		28	23	19	70
2		24	25	25	74
3	1	1	18	36	56
Total	1	53	66	80	200

Response

Non-urgent

The response expected from the help desk for non-urgent calls was coded as follows:-

1 - 1 hour or less
2 - less ½ day
3 - ½ a day
4 - 1 day
5 - More than 1 day

Question Group	No response	1	2	3	4	5	Row Summary
1	5	13	4	7	26	15	70
2	6	14	8	5	18	23	74
3	4	12	3	3	16	18	56
Total	15	39	15	15	60	56	200

Urgent

The response expected from the help desk for urgent calls was coded as follows:-

1 - Less than 5 minutes
2 - Less than 10 minutes
3 - Less than 1 hour
4 - Same day
5 - More than 8 hours

Question Group	No response	1	2	3	4	5	Row Summary
1	4	16	5	31	14		70
2	5	15	6	26	22		74
3	2	16	3	21	13	1	56
200	11	47	14	78	49	1	200

Customer Services Questionnaire - Analysis of Results

Performance v Importance

The following tables include the results of the remaining questions on page 2 and the corresponding questions on page 3.

Time taken to log call and speak to support analyst.

Performance	Importance				Total
	0	1	2	3	
0		1			1
1	1	18	4		23
2		43	38		81
3	1	31	22	1	55
4	2	26	7	1	36
5		4			4
	4	123	71	2	200

To calculate the average score:-

Performance ((22 * 5) + (81 * 4) + (54 * 3) + (34 * 2) + (4 * 1)) / 195 = 3.41

Importance ((122 * 4) + (71 * 3) + (2 * 2)) / 195 = 3.62
Normalised (* 1.25) = 4.53

Time taken to resolve query

Performance	Importance					Total
	0	1	2	3	4	
0	0	0	0	0	0	0
1	1	14	5	0	0	20
2	0	42	27	0	0	69
3	0	49	24	0	0	73
4	0	22	13	0	0	36
5	0	2	0	0	0	2
	1	130	69	0	0	

To calculate the average score:-

Performance ((19 * 5) + (69 * 4) + (73 * 3) + (36 * 2) + (2 * 1)) / 199 = 3.34

Importance ((130 * 4) + (69 * 3)) / 199 = 3.65
Normalised (* 1.25) = 4.57

Customer Services Questionnaire - Analysis of Results

Quality of Support

Performance	Importance				Total
	0	1	2	3	
0		2	1	1	**4**
1	1	11	16	1	**29**
2	1	23	46	2	**72**
3		28	38	7	**73**
4		7	8	5	**20**
5		1	1		**2**
	2	**72**	**110**	**16**	

To calculate the average score:-

Performance ((28 * 5) + (71 * 4) + (73 * 3) + (20 * 2) + (2 * 1)) / 194 = 3.53

Importance ((70 * 4) + (109 * 3) + (15 * 2))/194 = 3.28
Normalised (* 1.25) = 4.10

Attitude of Help desk staff

Performance	Importance					Total
	0	1	2	3	4	
0			1			**1**
1	2	14	53	7		**76**
2	2	15	70	8		**95**
3		7	14	2	1	**24**
4			3	1		**4**
	4	**36**	**141**	**18**	**1**	

To calculate the average score:-

Performance ((74 * 5) + (93 * 4) + (24 * 3) + (40 * 2)) / 195 = 4.22

Importance ((36 * 4) + (140 * 3) + (18 * 2) + (1 * 1)) /195 = 3.08
Normalised (* 1.25) = 3.85

Customer Services Questionnaire - Analysis of Results

Attitude of Support Staff

Performance	Importance					Total
	0	1	2	3	4	
1	1	10	29	2		42
2		23	59	7	1	90
3	1	13	42	4		60
4		4	4			8
	2	50	134	13	1	

To calculate the average score:-

Performance ((41 * 5) + (90 * 4) + (59 * 3) + (8 * 2)) / 198 = 3.83

Importance ((50 * 4) + (134 * 3) + (13 * 2) + (1 * 1)) /195 = 3.08
Normalised (* 1.25) = 3.85

Quality of reporting back progress

Performance	Importance					Total
	0	1	2	3	4	
0			3	2		5
1	2	3	6	3		14
2		10	28	7	1	46
3	1	16	42	26		85
4	1	13	23	8		45
5		3	1	1		5
	4	45	103	47	1	

To calculate the average score:-

Performance ((12 * 5) + (46 * 4) + (84 * 3) + (44 * 2) + (5 * 1)) / 191 = 3.08

Importance ((45 * 4) + (100 * 3) + (45 * 2) + (1 * 1)) / 191 = 2.52
Normalised (* 1.25) = 3.15

Customer Services Questionnaire - Analysis of Results

Quality of explanations given by support staff

Performance only

Question Group	Performance						Row Summary
	0	1	2	3	4	5	
1	3	5	24	30	7	1	70
2	4	5	29	26	7	3	74
3	3	4	17	26	5	1	56
	10	14	70	82	19	5	**200**

To calculate the average score:-

Performance ((14 * 5) + (70 * 4) + (82 * 3) + (19 * 2)) / 190 = 3.33

Summary of Performance and Importance

	Performance			Importance			
	Total Score	Valid Answers	Average	Total Score	Valid Answers	Average	Normal-ised
Logging Call	664	192	**3.41**	705	195	3.62	**4.53**
Resolving Query	664	199	**3.34**	727	199	3.65	**4.57**
Quality of support	685	194	**3.53**	637	194	3.28	**4.1**
Attitude of help desk	822	195	**4.22**	601	195	3.08	**3.85**
Attitude of support staff	758	198	**3.83**	632	198	3.19	**3.99**
Reporting progress	589	191	**3.08**	481	191	2.52	**3.15**
Explanations given	632	190	**3.33**				

Calculation of Performance in 1992

	Calculation of average score using percentages	Average
CIS help desk	((47*5)+(41*4)+(7*3)+(4*2)+(1*1))/100	**4.29**
Office Systems	((27*5)+(62*4)+(11*3))/100	**4.16**
Operations	((33*5)+(44*4)+(18*3)+(5*2))/100	**4.05**
Development	((33*5)+(39*4)+(16*3)+(8*2)+(4*1)/100	**3.89**

Customer Services Questionnaire - Analysis of Results

Importance of other aspects of the help desk

	High Priority (1)	Important (2)	Would be useful (3)	Not Important (4)	Don't Know (0)
Training	55 (27.5%)	68 (34%)	63 (31.5%)	9 (4.5 %)	5 (2.5%)
Recorded message	17 (8.5%)	40(20%)	94 (47%)	37 (18.5%)	12 (6%)
On-line help	26 (13%)	36 (18%)	93 (46.5%)	37 (18.5)	8 (4%)

Customers preferred way of communicating with the help desk

	First choice	Second Choice	Third choice	Don't Know
Phone	83	73	9	35
ACD	93	50	20	37
Email/Fax	5	43	115	37

----------End----------

Customer Services Questionnaire - Comments

Question-num	Comment
6	Usually find Support Staff have not got expertise for particular problem and have to pass on to 3rd person. So 'select problem area using phone' would get to the relevant Support Staff straight away.
10	Only on one occasion I was waiting until lunch before any response, usually staff are very helpful and pleasant. Is there anyway of organising staff (possibly on rota basis) to get in for an 8am start. As quite a few members of staff come in at 7:45 they have to wait until 8:30am before reporting fault. Some staff, if their computer is faulty, can't do any work so for them I suppose complaints should be prioritised. Again could Support Staff have someone to call from 8 a.m. Always helpful and polite. Some staff cannot work if their computer is faulty - some form of giving priority to problems.
11	Obviously some problems take longer than others to solve, but generally it is satisfactory. Nothing is more frustrating than needing to speak to someone and all you get is a recording, asking you to press different numbers on the telephone. The present system has always been good enough for me.
12	It would be far better if the old system could become operational again. Do away with the oily rag and talk to the engineer. Helpdesk should be open from 7:45 - 19:45, as it is early in the day when most problems arise. Most problems arise when logging on in the morning, therefore the Helpdesk and the Support Staff should be operational during working hours, 7:45 - 19:45. If there is a network problem, a P.A. announcement would stop a lot of Helpdesk calls and keep users informed a lot quicker.
13	Thank-you for a prompt and efficient service. Some of the minor faults can be resolved quickly by using the phone.
14	Need to improve advice on PC related problems.
16	It would be useful to have someone on the Helpdesk who could answer urgent problems at once. Instead we have the Helpdesk contacting IS at Backford to get someone there to contact us to sort out the urgent problem, maybe hours later.
18	A very frustrating situation exists when Help queries are directed to County Hall only for them to be re-directed to Backford Hall. Their own Help Desk worked very well and response times were usually excellent, problems often being solved over the phone. It seemed a retrograde step to direct all calls to County Hall even though there may be a need to log calls, this could be done locally. The reduction in staff at Backford has added to the problem.
19	As an IT member of staff, it is often that an explanation is not given. An assumption is probably made that I don't require an explanation.
20	*Depends on complexity of problem (rating the explanations of support staff)
21	Complexity of problem is an important factor.
22	I fully appreciate the response and work carried out by IS. I myself would find it very difficult and time consuming should the process alter.
23	There is nothing more annoying than a select problem phone, better to speak to a person.
24	Staff are always helpful. I feel that it is most important to talk the problem through.

Customer Services Questionnaire - Comments

27	The majority of my calls are concerned with issues following a Cheshirelink new version, e.g. SMARTSCAN, I rarely experience serious problems. * I believe any self-help facility would require a high skill level in providing sensible, understandable help script. Most of the helps and tutorials I find are very poor and of little use.
29	Have noticed significant shift in the past 12 months to resolving PC problems by merely re-installing software. This is something users could do utilising their YT, and does not appear to be the level of "technical expertise" we expect as part of our maintenance agreements. Time between phoning Helpdesk and being contacted by Support Staff is the key requirement. Difficulties will probably arise as users consider all problems to be urgent from their perspective.
30	We have a problem in that all PC's are difficulty configured - users are expected to be 'PC whizzes' - or create a demand on Help Desk that really cannot be handled. Provision of a set of standard services from IS. A managed server I believe would go a long way to making more automated ways of resolving problems possible.
31	I have no complaints but ample praise.
33	Most of my calls were systems related and were resolved satisfactorily by the Backford Hall staff. Application related calls were more variable in response, e.g. for Microsoft Office, and did not necessarily solve any problems. Telephone Helpdesk staff sometimes seem to have limited knowledge of terminology. Support for the set-up of MS Office could be better.
35	* Difficult to use some of these if you are having a problem with PC or Cheshirelink. (use E-mail of Fax)
36	Generally I am happy with the Helpdesk. The staff are always very pleasant and helpful. I feel that it is better to have an agreed time limit and the assurance of the Helpdesk Staff who also follow things up for you .
38	One member of the support staff - though knowledgeable - is too keen to provide the solution before monitoring that the recipient has fully understood the answer to the query.
39	Very pleased with the service. All problems solved - helpful assistance.
42	Support staff always try hard and always win, but.... * Support staff are sometimes overwhelmed by the number and extent of problems, some of which are historically caused and intrinsically difficult. At other times, they are the victims of multi-layer projects which need more co-ordination. (rating the quality of support)
43	Problems that can be resolved over the telephone are dealt with quickly. When support staff are required on site the response is very poor - often promised then delayed - this can hold up processing of workloads.
47	I avoid using the Helpdesk if at all possible, because of the time taken to assist. Some of the younger members of staff assume mature women are ignorant of IT matters and their attitude can leave a lot to be desired. Getting straight through to support staff would be much better. I have found that I've often solved the problem before 'help' has arrived.
49	I have always had an excellent service from Helpdesk Staff.
50	Training is important, but it is the day to day use which matters, and this is when problems/queries arise, so support is essential.

Customer Services Questionnaire - Comments

52	I recently E-mailed minutes of Steering Group chaired by Group Director to all twelve members. A post master message flashed on screen. I assumed a member was on leave. Three days later I realised none of the Steering Group received the minutes. I got no satisfactory explanation for this and no sympathy when I suggested that the Postmaster message had not let me know of the complete failure of Cheshirelink ; a) to deliver this message b) let me know it had not been delivered c) offer explanation
54	The whole process of contacting the Helpdesk, for urgent queries, is frustrating, especially for urgent problems, when we know who it is we need to speak to and will eventually deal with the query. We would prefer to deal with it direct.
55	Would like to know waiting time once my call has been logged by the Answer Service, before my problem will be dealt with.
57	Service is very good. The situations that I have contacted the Help desk have always been 'urgent' to me, (I have not been able to continue to work until the problem has been resolved) and therefore I have scored '3' for time taken. I would like to speak to someone, rather than E-mail of fax - never quite sure they've got through.
59	The most annoying thing is finding the Helpdesk number engaged, or to be passed to an answerphone. Contacting directly to Support Staff for anything other than the most urgent problems would bound to clog up the system - preventing urgent problems receiving priority.
60	We are having problems related to the network and server at Backford. Not sure who is responsible for providing support and advice. Some queries with the use and application of the Corporate software, where can we get expert help from? An extending opening time for the Helpdesk would be useful.
62	It is sometimes difficult to make contact with someone with specific knowledge of PC packages. I have difficulty trying to find help for the Microsoft Word/Excel package. Major problem sorting out the correct way of sending a spreadsheet attached to an E-Mail. I do not think there should be a charge for all Helpdesk services. We are not told what it costs to use this service.
65	There should be an instantly available person for routine tasks like cleaning and print queue.
66	As a member of the Communications Group at County Hall, I receive and talk to several Helpdesks across the country. The major problem that I see that most of them have, is the fact that there is no set rules or regulations to be followed. By this, I mean that each operator has their own set rules, and as a group they don't work to the same script. This can be seen with Cheshirelink problems. One operator will pass a certain error to the Cheshirelink team, but the same error will be passed to our group by other operators, this happens for all groups and operators. What is needed is a detailed contacts listing, error problem guide and a list of who is responsible of which system, i.e. BRS, EMS, CCRIS, ALS etc. etc.
67	When pulling off labels for Cheshire Contacts it was a matter of being passed back to either a KEO problem or a VAX problem, no-one seems to know.
70	I sometimes work to very tight deadlines and if a problem occurs I need an immediate response/resolution - not someone ringing me back in so many minutes - which means I can't meet any deadlines with the work (i.e. a Committee or Board report). This is also not an excuse my boss will readily accept. Extending the Helpdesk opening hours would be useful - a lot of secretaries and Admin Support Staff are in the office soon after 8am and it's frustrating if there is a problem, not to be able to contact anyone until 9:00am
71	You take no account of the clients local enviroment, you have assumptions about what we know. We know more than you do! It is a simplistic approach to customer care! What do you mean, no time, no staff. We want help, not to create more work!
72	An easy to remember E-Mail address is essential, e.g. HELPDESK.

Customer Services Questionnaire - Comments

75	The quality of service and support is overall very good. Being able to talk directly to expert help is always preferable to any electronic aid.
76	Some problems solved rapidly. However many problems since April have been Windows 95 related problems and Helpdesk have not always been able to solve the problem, " satisfactory " is therefore an average.
78	Helpdesk itself is fine. Occasionally some difficulty in explaining non-standard problems, if the user is not an IT specialist to Helpdesk staff. Some problem diagnostics might be useful to identify problem at this stage. Support Staff not always 'Customer focused' in attitude. Please can we have virus updates of PPSS scan for Win 95 download via Cheshirelink!?
83	It would be helpful if the support technician called me to let me know if they couldn't deal with my query straight away with an explanation as to why. Response time, to logging call, to hearing from Support Staff could be better, especially if the problem is connected to an urgent job.
85	Why was the Help Desk moved from Backford Hall to County Hall? It is a waste of time ringing to County Hall only to have the problem resolved by a member of Backford Hall staff. Staff on Helpdesk should be trained to be Support Staff as well.
86	Standard printed documentation to accompany disc could be more "user friendly"
90	Where queries/problems cannot be resolved within a specified time it would be useful to have progress updates at regular intervals.
91	*The quality of support is very good but the equipment we use is not up to the jobs we now have to do. Support Staff are trying to support outdated equipment in some cases, so providing a good service is not always possible for them. (rate the quality of support) *E-Mail and other linked services are the main things that cause problems, so E-Mailing problems would be useless. As most of us are non-technical would we be describing the problem correctly? Over the phone we can be prompted to give the correct description of the problem, e.g. What happens if you do this? How about a manual with basic instructions on how to correct certain problems. Must be an idiots guide!
92	Prefer the way it used to be by ringing the Helpdesk at Backford Hall. The staff there knew the systems and their jobs better.
95	*I have put 'satisfactory' - depending on who reports back - can get a little quicker (attitude/response of Support Staff)
96	The service provided by the Help Desk is a very important role. The staff are always helpful and very efficient. I think one to one contact will help the Help Desk in very important problems will save time. This is essential, the longer the system/computer is out of use is not in the efficiency of the authority.
101	The concept of Helpdesk, as an interface is good. When a user phones up it would be more helpful and user friendly if the Help Desk person had some technical knowledge so that they could make intelligent suggestions. *This would be far better than the present system. (Select problem area using phone)
102	Vastly improved service, we've had access to personal assistance with technical queries.
105	It obviously depends on the individual who is looking into your problem, so one should not generalise. Current situation seems to work very well.

Customer Services Questionnaire - Comments

111	It would help if the Help Desk was operated from 8:30am, as network problems first thing cannot be logged until 9:00am
113	It is important to speak to a member of support ASAP because work cannot continue until problem is resolved. Staff are working to deadlines. *Use of E-mail or fax would not be satisfactory. Not always easy to explain in writing.
117	Even if the problem can't be solved quickly, I think it is very important to keep the client informed, so they don't feel their problem has been shelved.
119	Very helpful, friendly staff but sometimes there is quite a wait between logging problems and getting them solved - not so much with BRS lock-outs, but more so with ALS problems. Most importantly, the time taken to resolve the problem should be as short as possible. Less important is the particular way in which the problem gets resolved - i.e. whether by support staff or through a self-help on-line system.
121	Would like more explanations on problems.
122	I find all the Support Staff to be very helpful and courteous all the time. It is nice to know you can rely on them when help is needed. The present system with the Help line is very good and efficient. I would be quite happy for it to continue without changes.
124	I feel more staff are needed to cut down response time.
126	Backford's network and OS' seems to be a mystery to 2400 staff. I was once asked to spell "ENNTEEFOR"
127	I would prefer an immediate response to any urgent problems. I only try to use the support when I am really in difficulty. More liaison is needed with C.C.C. departments so an understanding is reached e.g. How one department understands the link with the other and how what happens can affect the other. An understanding is needed of the financial system not just one part of it.
128	Ideally, I would like to ring direct to personnel at the IT Centre. It has proved inconvenient that I have to leave my work, not knowing when someone will ring back to help me with my problem.
133	Excellent service. Invaluable to the schools - everyone very supportive. The service we receive at present is first rate, you will be dealing with people who need to speak to Support Staff to talk them through the problems. A vast majority have very little knowledge of computers.
135	*On a few occasions the response has not been as polite and helpful as we would like. (Attitude/response of Helpdesk staff)
136	We have 33 stations on our Admin system and another 150 or so on the other networks. Support is always a problem - underfunded, changing software. A booklet of 100 most asked for 'help queries' may help. Fax back and E-Mail replies are good, telephone replies to a busy school are a problem - lines often engaged, start teaching or unavailable - must be frustrating. Schools do not appreciate the problems of computer support - the variety & complexity. On-line (modem) does not seem to be the solution it should be - time taken, problems logging on etc. If everything was compatible would be better e.g. All Windows 32 bit with seamless transfer between modules. We could also use more facilities and get more from our system. Thanks for all your efforts in the past - it does help knowing that you are there and we don't have to solve anything ourselves. This comfort is most useful.
137	When working in a school office usually there is just one person doing all the work - therefore for a problem to be solved right away it would be very much appreciated rather than go back and forward to different jobs etc.

Customer Services Questionnaire - Comments

138	Current procedure is very unsatisfactory as the section has to constantly contact the Help Desk for operational/system problems. As logging staff do not understand details of programmes too much information has to be provided. Also non-computer staff have difficulty in explaining technical details. Basically the section needs direct access to the person who has set-up the programme. Also the time taken has been excessive, in several cases more than 1 hour and on one occasion half a day. As the majority of problems within the section relate to operational problems the second method would suit network problems but this section basically requires direct access to the person who has written the programme.
141	At times it's quite frustrating waiting for help when the query is urgent and your boss is waiting for a particular job that you are having problems with. Immediate help for urgent queries should be by the easiest, quickest and less frustrating way as possible.
143	*This type of operation causes more trouble than it is worth. (select problem area using phone)
146	The assumption from EIS staff is that we are all " Au Fait " with communication problems.
147	I have only been in my position since April 1997. On all occasions I have been satisfied but I feel a follow-up would have been appreciated, but at the same time I know the Support Staff are kept busy with on going problems.
149	*Would prefer to speak to someone on Help Desk for all our problems. This sounds okay but may not work if lines are busy - we need instant contact with the Helpdesk. (select problem area by using phone)
152	Because school secretaries do not work full-time as a rule, they are very pressurised for work done 'yesterday', it is essential that a speedy back-up is maintained. However we are very grateful and relieved that you are there!!!! You do a great job.
154	Because there is only one terminal in school - when a problem arises the computer is redundant until a logged call is answered by Support Staff. On an odd occasion the call has not been returned - even on the following day. Help when required is much appreciated - keep up the good work.
155	The service is excellent apart from the time taken to speak to someone. Usually this is all right but when there is only 1 computer in the office and it is out of action for a couple of hours it makes life difficult!
156	Within County Hall I would like to see Support Staff released to attend directly to problems rather than via phone - and at short notice.
162	Don't like the idea of recorded messages/E-Mail (Don't have the same understanding as someone on the Help Desk)
163	I would still like to see a list of solutions to the most frequent problems. I have used the fax method to solve problems - very useful. E-Mail is more problematic in schools, in that the office staff working on the management machine have to stop what they are doing to check the E-Mail and it is not obvious that an answer is arriving - with a fax it is.
164	Most queries are regarding the Providerlink system, with a lot of faults having to be reported back to the programmers
166	When ringing the Help Desk one would expect the knowledge of the staff to be greater than that of the caller.
167	Time taken to resolve queries varies, as for Providerlink staff may have to contact March systems. Whilst we are waiting both our computers (Master and Slave) are out of action and we find this frustrating. * Interesting but we're so overworked we just wouldn't have the time to contact it (Recorded message with details of status of the network)

Customer Services Questionnaire - Comments

168	Staff are very good when you can get them. Not always possible but we do appreciate that you are under-resourced as well .
169	A direct help line to CHESHIRElink rather than going through the Help Desk would be helpful and speed things up.
170	These figures are an average on the contacts made. Some have been really excellent in all respects but in contrast others have been poor and I have had to chase the Help Desk for a response.
174	I cannot fault the service - I am never made to feel 'stupid' (even when I am)
175	Problems have always been resolved satisfactorily, with there being no major problems - one does have to chase up progress via telephone on occasion, though. I have selected current system as best for urgent problems on the condition the response is very quick. I feel that a two-tier system where urgent problems are dealt with personally over the phone and non-urgent via E-Mail when staff have the time would be the best solution, thank-you for sending a questionnaire incidentally.
177	Sometimes answer too technical. Usually urgent problems need to be resolved ASAP, and by the very nature need to be given a short response and 'cure' time.
179	The service given by Help Desk is on the whole good, but it depends which member of staff is manning the desk. Also, the time it takes to resolve a VAX related query is longer since we go through County Hall rather than straight to Backford.
180	I have enough work to do without filling in more E-Mails.
181	I would prefer to speak to Support Staff directly without having to go through the Help Desk, the majority of problems I experience happen when I am doing an urgent job, waiting for Support Staff to call is not always satisfactory.
182	When a problem requires Support Staff to call out to site, problem can take time to rectify. (2 days for an urgent fault). Seem to have particular problem with Cheshirelink faults (computer transfers). No one seems clear as to where the fault lies and who is responsible.
188	Fix time more important than Response time. Sometimes technical staff forget that the average user in not a "techie". Who decides whether urgent or not-urgent? Personal perceptions can be very difficult.
190	Difficult to give an overall assessment because the service varies depending on the expertise of the Support Staff and their knowledge of the SIMS module.
193	I sometimes need help with problems about 4PC's which we have for the public to use. A quick response is essential. Very often the Support Staff assume that one is illiterate as far as computers are concerned. The explosion of IT means more help will be needed with troubleshooting problems of a general nature.
195	Would be helpful if Help Desk could answer simple problems - instead of going through the routine - Log number etc. etc. other than that - good service. For simple problems - it can be frustrating to have to give all details - get log number wait for call - instead of the person answering the call being able to assist. (generally Lotus /Word)

Customer Services Questionnaire - Comments

198	The Help Desk staff are patient and helpful. Response time usually very good. However, when people are required to visit the office to attempt to rectify the problems, the response is not as swift and sometimes problems are not solved in one visit. Telephone contact is preferable. One can encounter a need for assistance whilst working on something, urgently needed as part of our SLA with schools. Due to pressure, we do not have time for other forms of contact.
200	Everyone I've contacted has been friendly, helpful and supportive. More training for Admin staff, (particularly in the "outposts" would be much appreciated. Courses need to be applicable to Admin problems, whereas CMU are teacher biased.

----------End----------